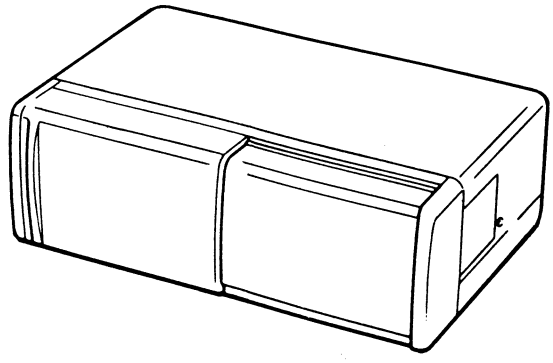
CDX-A20

SERVICE MANUAL

AEP Model



SPECIFICATIONS

System
Compact disc digital audio system
Laser diode properties
Material: GaAlAs
Wavelength: 780 nm
Emission duration: Continuous
Laser output power: Less than 44.6 μW*
* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.
Spindle speed
200 r.p.m. to 500 r.p.m. (CLV)
Error correction
Sony Super Strategy Cross
Interleave Reed Solomon Code
Number of channels
2
D-A conversion
16-bit linear
Frequency response
20 - 20,000 Hz ±3 dB
Dynamic range
80 dB
Signal-to-noise ratio
80 dB
Wow and flutter
Below measurable limit
Outputs
Line output (for changer connector only)

General
Power requirements
12 V DC car battery (negative ground)
Current drain
800 mA (CD playback)
800 mA (during disc loading or eject)
Operating temperature
– 10°C - 55°C (14°F - 131°F)
Mounting dimensions
Approx. 301 × 98 × 200 mm (w/h/d)
(11 7/8 × 3 7/8 × 7 7/8 in.)
not incl. projecting parts and controls
Weight
Approx. 3 kg (6 lb 10 oz)
Supplied accessories
Disc magazine (1)
Mounting hardware (1 set)
Extension cord (1)

Design and specifications subject to change without notice.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

MICROFILM

COMPACT DISC PLAYER

SONY®

AUD

FEATURES

- **Mobile CD auto changer** automatically changes the discs in the disc magazine and enables you to play the desired selections of the 10 discs in any desired sequence.
- **Compact and space-saving** for either vertical or horizontal installation in the car.
- The connected equipment enables you to operate the changer in the car.

PRECAUTIONS

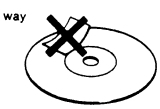
- This unit is designed for **negative ground 12 V DC** operation only.
- Avoid installing the unit in a place:
  - —subject to temperatures exceeding 55°C (131°F) (such as in a car parked in direct sunlight)
  - —subject to direct sunlight
  - —near heat sources (such as heaters)
  - —exposed to rain or moisture
  - —exposed to excessive dust or dirt
  - —subject to excessive vibration
- When transporting the unit, keep the unit horizontal.

On moisture condensation
On a rainy day or in a very damp area, moisture may condense on the lenses inside the unit. Should this occur, the unit will not operate. In this case, **remove the disc and wait for about an hour until the moisture evaporates.**

NOTES ON COMPACT DISCS

Handle disc by its edge, and to keep the disc clean, do not touch the surface without label.

Do not stick paper or tape on the labeled surface.



Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in the direct sunlight where there can be a considerable rise in the temperautre.

Before playing, clean the disc with an optional cleaning cloth. Wipe the disc in the direction of the arrows.

Do not use solvents such as benzine, thinner, commercially available cleaners or antistatic spary intended for analog discs.

NOTES ON DISC MAGAZINE

- Do not leave the magazine in high-temperature, high-humidity locations, such as on a car dashboard or at the rear window where the magazine will be subjected to direct sunlight.
- Do not insert more than one disc into one slot, otherwise the player and the discs will be damaged.
- Do not drop the magazine or subject it to violent shock.
- When the magazine is not in use, store it in its protective case.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

TABLE OF CONTENTS

Section	*Title*	*Page*
	Specifications	1
	Features	2
	Precautions	2
	Servicing Notes	3
	Preparations	4
	Installation	4
	Connections	5
1.	**MECHANICAL ADJUSTMENTS**	
	Large Elevator Gear Position (Location 10.5) Adjustment	6
	Homing Adjustment	7
2.	**ELECTRICAL ADJUSTMENTS**	
	1. Focus Offset Adjustment	8
	2. Tracking Offset Adjustment	8
	3. Tracking Gain Adjustment	9
	4. Focus Gain Adjustment	10
	5. PLL Freerun Frequency Adjustment	10
3.	**DIAGRAMS**	
	3-1. RF Board Mounting Diagram	11
	IC Block Diagrams	14
	3-2. Mounting Diagram	16
	3-3. Schematic Diagarm	21
	Semiconductor Lead Layouts	24
4.	**EXPLODED VIEWS AND PARTS LIST**	24
5.	**ELECTIRCAL PARTS LIST**	29

SERVICING NOTES

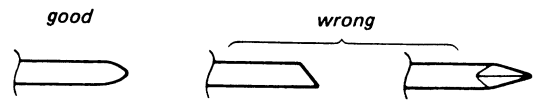
NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

Flexible Circuit Board Repairing

1. Keep the temperature of the soldering iron at 270° ± 10°C during repairing.
   You can maintain the temperature of the soldering iron around 270°C by using the thermal controller as illustrated on the right.
2. Do not touch the soldering iron more than 4 seconds or 3 times on the same conductor of the circuit board.
3. Do not apply force on the conductor when soldering or unsoldering.

Tip of soldering iron



ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

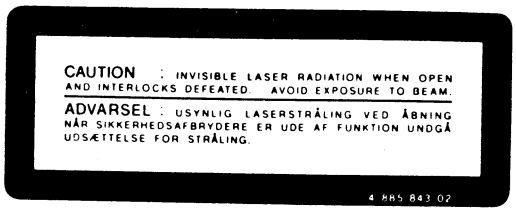
Laser-didoe data

- Materiale: GaAlAs
- Bølgelængde: 780 nm
- Udstråling: Kontinuerlig
- Laseroutput: Max. 0,4 mW*
  * Målt i 1,6 mm afstand fra overfladen af objektivlinsen pa den optiske pick-up enhed.
- Klassifikation: Klasse IIIb.

LASER ADVARSEL MÆRKNING

Følgende mærkning findes indvendig i apparatet:

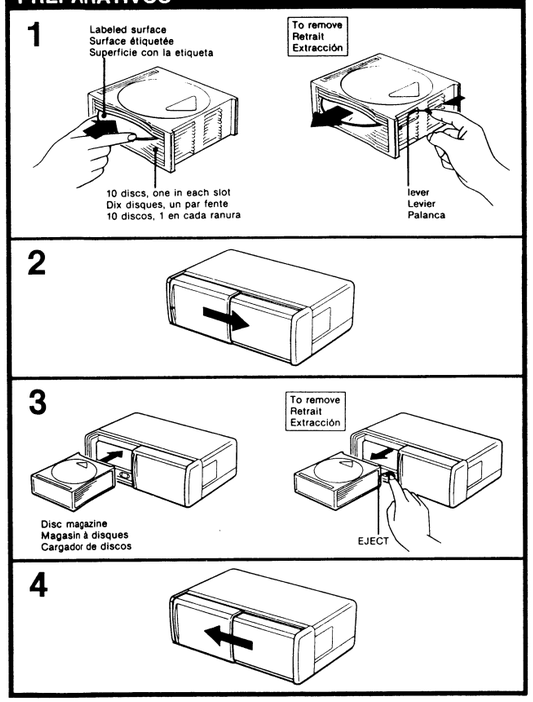
1. Advarsel Mærkning


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.
4 885 843 02

VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersateilyä.

CDX-A20

PREPARATIONS
PREPARATIFS
PREPARATIVOS

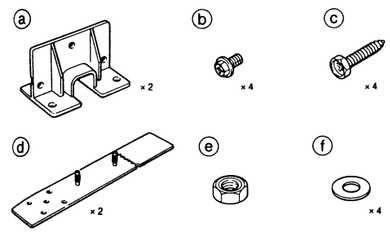


Use the unit with the door closed
Otherwise, foreign matter may enter the unit, and contaminate the lens in the player.

Utiliser cet appareil avec la porte fermée
Si cela n'est pas fait, des matières étrangères peuvent entrer dans l'appareil et contaminer l'objectif du lecteur.

Emplee la unidad con la puerta cerrada
De lo contrario, podrían introducirse materias extrañas y contaminar el objetivo del reproductor.

SUPPLIED MOUNTING HARDWARE
MATERIEL DE MONTAGE FOURNI
FERRETERÍA DE MONTAJE SUMINISTRADA



INSTALLATION
INSTALLATION
INSTALACIÓN

PRECAUTIONS

- Choose the mounting location carefully, observing the following:
  —The fuel tank should not be damaged by the tapping screws.
  —There should be no wire harnesses nor pipelines under the place where you are going to install the unit.
  —The spare tire, tools or other equipment in or under the trunk should not be interfered with nor damaged by the screws or the unit itself.
- Be sure to use only the supplied mounting hardware for a safe and secure installation.

PRECAUTIONS

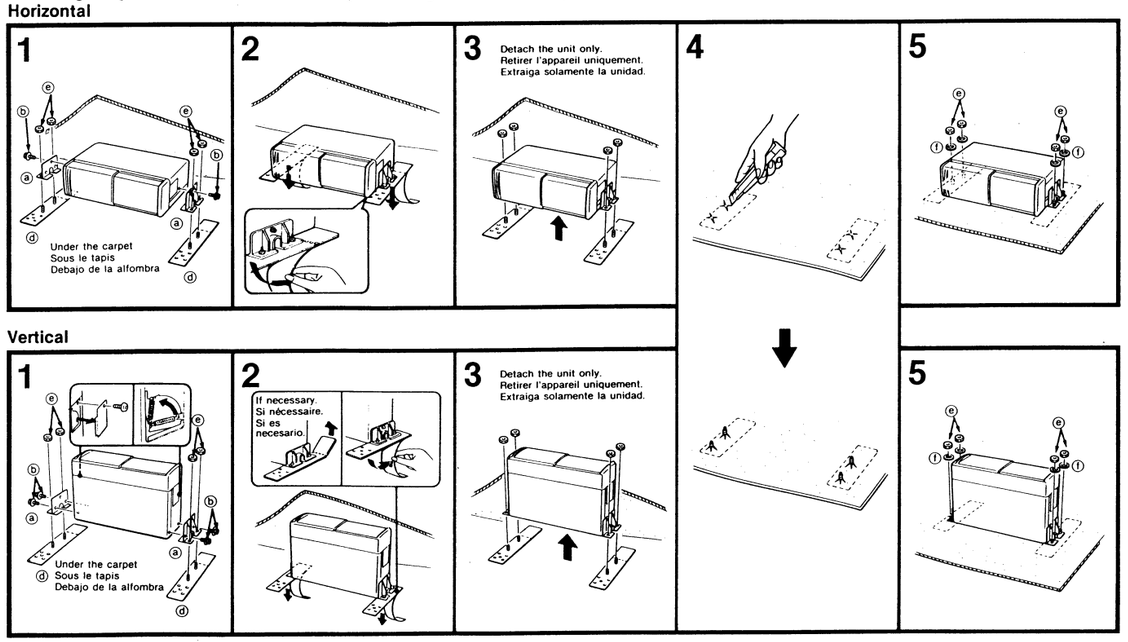
- Choisir soigneusement l'endroit de montage en observant ce qui suit.
  —Le réservoir d'essence ne doit pas être endommagé par les vis taraudeuses.
  —Il ne doit pas y avoir de faisceau de fils ou de tuyaux sous l'endroit où l'on désire installer l'appareil.
  —La roue de secours, les outils ou autre équipement dans ou sous le coffre ne doivent pas être gênés ni endommagés par les vis ou l'appareil lui-même.
- S'assurer d'utiliser uniquement le matériel de montage fourni pour une installation correcte et sûre.

PRECAUCIONES

- Elija cuidadosamente el lugar de montaje, teniendo en cuenta lo siguiente:
  —El depósito de combustible no deberá dañarse con los tornillos roscachapa.
  —No deberá haber mazos de conductores ni tubos debajo del lugar donde vaya a instalar la unidad.
  —La rueda de repuesto, las herramientas, u otros equipos situados dentro o debajo del portaequipajes no deberán verse interferidos ni dañados por los tornillos ni por la propia unidad.
- Para realizar una instalación segura, emplee solamente la ferretería de montaje suministrada.

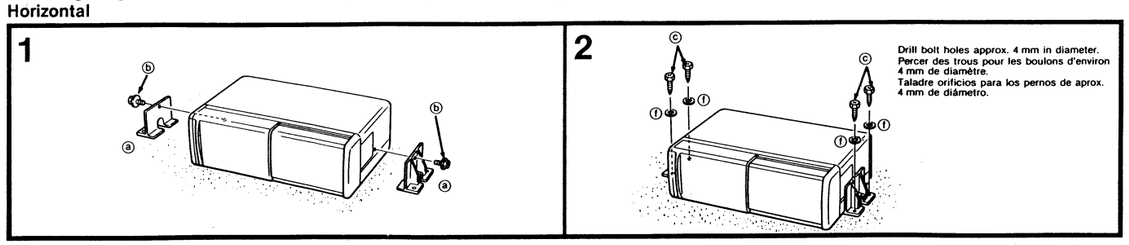
HOW TO INSTALL THE UNIT / INSTALLATION DE L'APPAREIL INSTALACIÓN DE LA UNIDAD

Mounting diagram 1 / Schéma de montage 1 / Diagrama de montaje 1
Horizontal

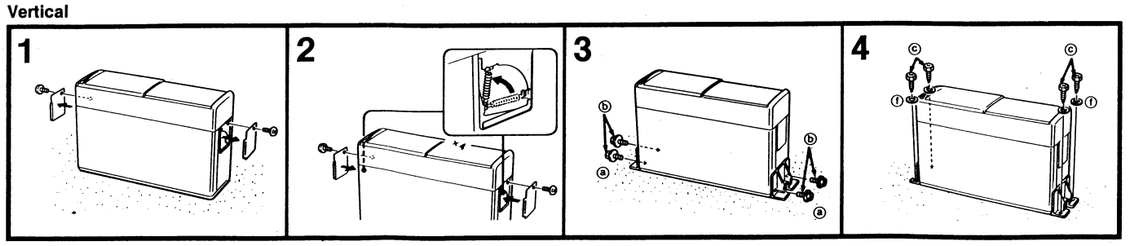


Vertical

Mounting diagram 2 / Schéma de montage 2 / Diagrama de montaje 2
Horizontal


1
2
Drill bolt holes approx. 4 mm in diameter.
Percer des trous pour les boulons d'environ 4 mm de diamètre.
Taladre orificios para los pernos de aprox. 4 mm de diámetro.

Vertical



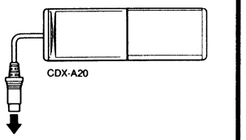
If the installation is not secure, sound skipping may occur. For secure installation, proceed the Mounting diagram 2.
Si l'installation n'est pas correcte, des sautes de son peuvent se produire. Pour une installation sûre, procéder comme sur le montage 2.
Si la instalación no es segura, es posible que se produzcan saltos de sonido. Para la instalación segura, siga el Diagrama de montaje 2.

CONNECTIONS
CONNEXIONS
CONEXIONES

Caution
Before making connections, disconnect the ground wire terminal of the car battery to avoid short circuits.

Attention
Avant d'effectuer les connexions, déconnecter le fil de masse de la batterie de voiture pour éviter un court-circuit.

Precaución
Antes de realizar las conexiones, desconecte el terminal del conductor de puesta a carrocería de la batería del automóvil para evitar cortocircuitos.



to a Sony car stereo system which has the appropriate connector for CDX-A20.

A un autostéréo Sony possédant le connecteur approprié pour le CDX-A20.

a un sistema estéreo para automóvil Sony que disponga del conector apropiado para el CDX-A20.

For details, refer to the installation/connection manual of each product.

Pour plus de détails, se reporter au mode d'emploi pour l'installation/connexion de chaque produit.

Con respecto a los detalles, consulte el manual de instalación/conexión de cada producto.

SECTION 1
MECHANICAL ADJUSTMENTS

[LARGE ELEVATOR GEAR POSITION (LOCATION 10.5) ADJUSTMENT]

1. Move the middle elevator gear in the arrowed direction and place the top plate at the position where there are no clearances between the bottom face of the top plate and the top edges of the three claws.

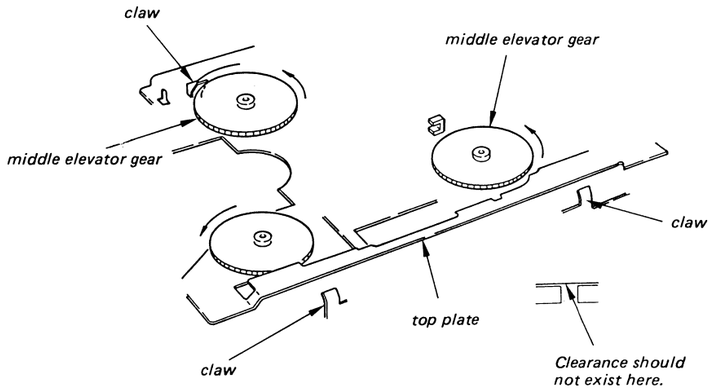


Fig. 1

2. Put the large elevator gear on the shaft of the top plate taking care not to move the middle elevator gears. The large elevator gear should be fastened by the top plate and EHS protrusion and should position in the relationship with the EHS as shown in Fig. 1.
3. After the placing, fix the large elevator gear with a retaining ring.

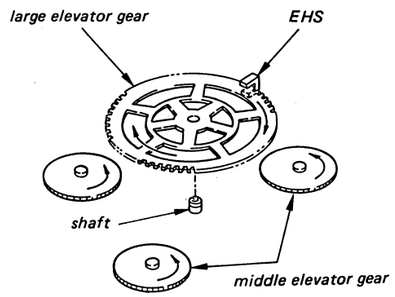
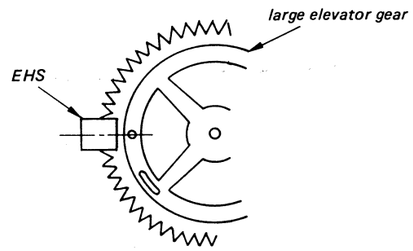


Fig. 2



Edge of EHS protrusion and edge of protrusion on the large elevator gear should be aligned as shown.

[HOMING ADJUSTMENT]

Note: 1. The mechanism section should be completely assembled.
2. Control the mechanism with the main unit XR-7300.

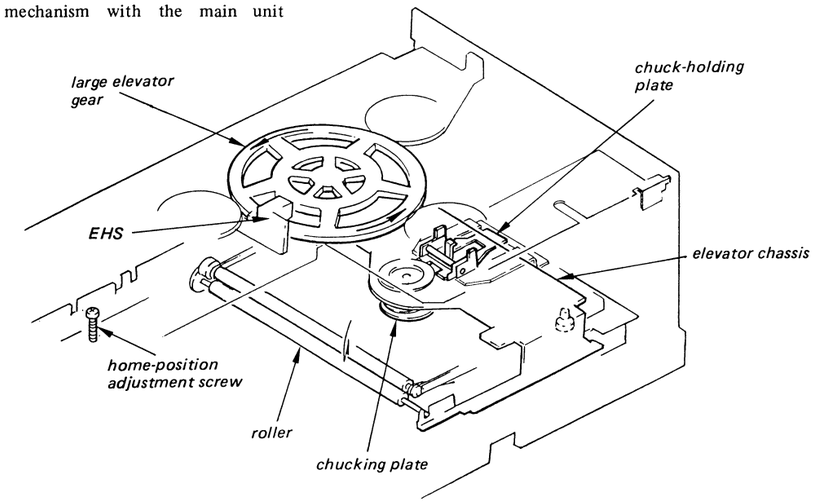


Fig. 3

1. Put the disk magazine containing several disks in the changer.
2. Initialize the changer.
3. Pull off the first disk.
4. Wait until the elevator lowers down to the home position.
5. Move the large elevator gear so that the clearance between the inner edge face of the chucking plate and edge of the top face of the stainless chuck-holding plate becomes in 1.5 mm (1/16 inches) as shown in Fig. 4.
6. Make a dot marking on the large elevator gear as shown in Fig. 5.
7. Re-put the first disk in the disk magazine.
8. Pull off the first disk again. The dot marking made in the step 6 above should position as shown in Fig. 5.
9. Fine adjust the position of the large elevator gear with the home-position adjustment screw shown in Fig. 3.

Adjustment Screw Position	Large Elevator Gear Position Displacement
One (1) turn in clockwise	15 (fifteen) degrees clockwise
One (1) turn in counterclockwise	15 (fifteen) degrees counterclockwise

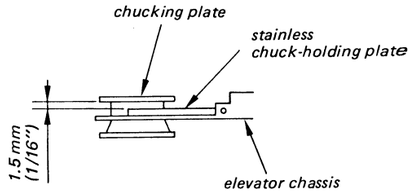
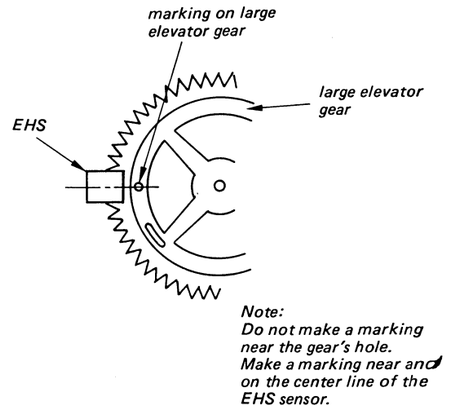


Fig. 4



Note:
Do not make a marking near the gear's hole.
Make a marking near and on the center line of the EHS sensor.

Fig. 5

[HOMING ADJUSTMENT]

Note: 1. The mechanism section should be completely assembled.

2. Control the mechanism with the main unit XR-7300.

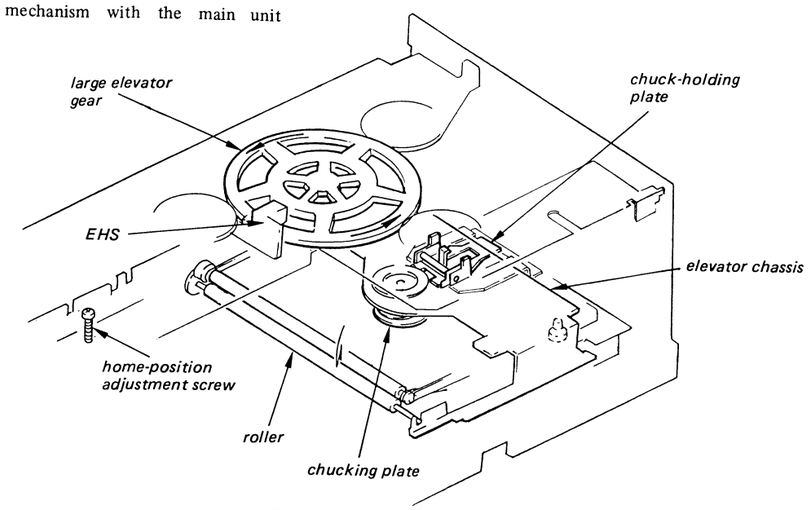


Fig. 3

1. Put the disk magazine containing several disks in the changer.
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7. Re-put the first disk in the disk magazine.
8. Pull off the first disk again. The dot marking made in the step 6 above should position as shown in Fig. 5.
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One (1) turn in counterclockwise	15 (fifteen) degrees counterclockwise

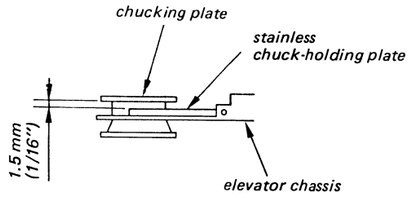
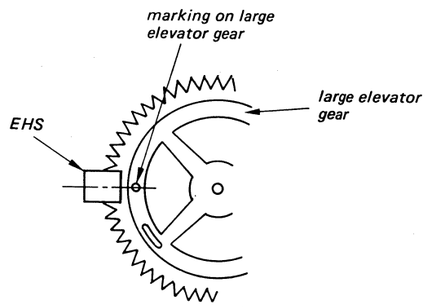


Fig. 4



Note:
Do not make a marking near the gear's hole.
Make a marking near and on the center line of the EHS sensor.

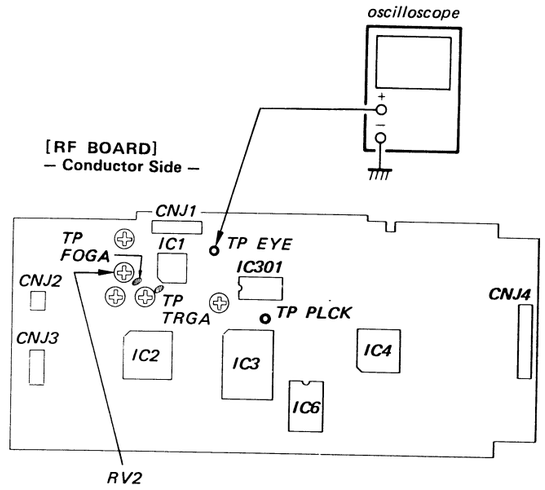
Fig. 5

SECTION 2
ELECTRICAL ADJUSTMENTS

1. Perform adjustments as given.
2. Be sure to use the disc "YEDS-18" parts code: 3-702-101-01, but only when indicated.
3. Unsolder the small shield plate from the RF board.
4. Power supply voltage: DC 14.4 V (more than 2A).

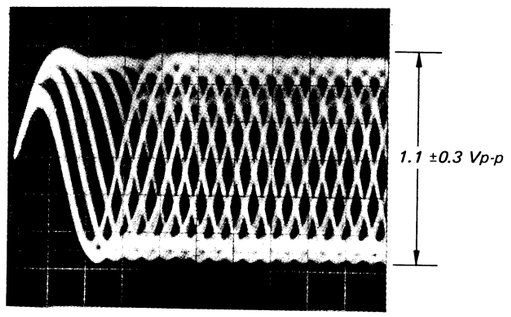
1. Focus Offset Adjustment

Procedure:



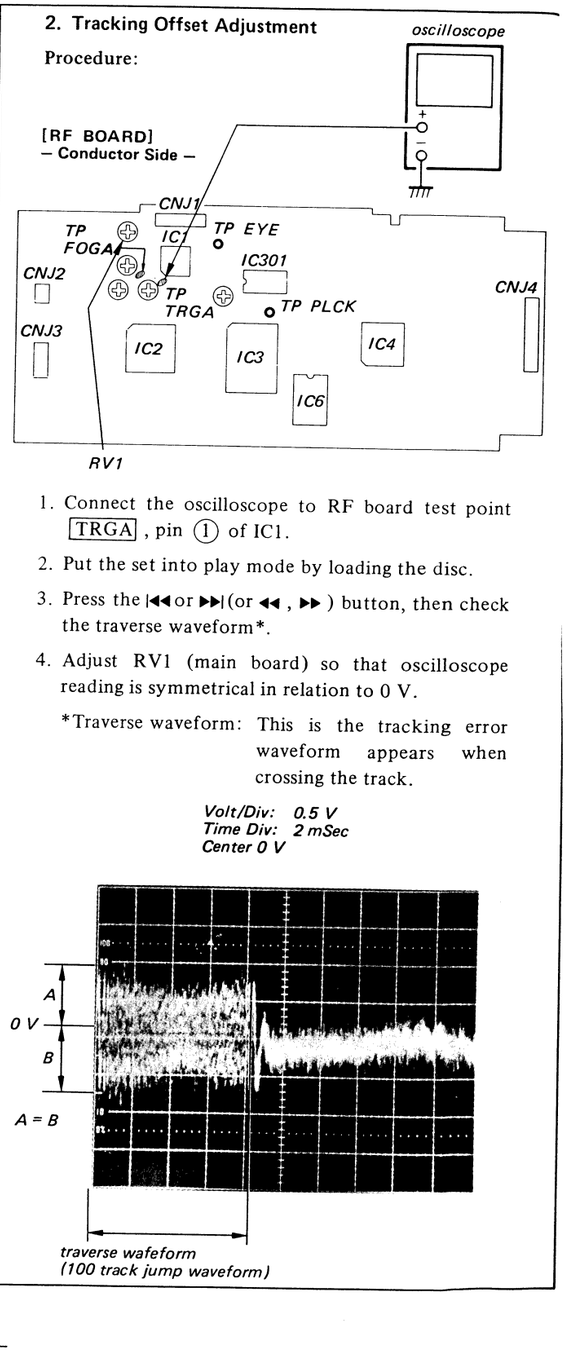
1. Connect the oscilloscope to RF board test point EYE.
2. Put the set into play mode by loading the disc.
3. Adjust main board RV2 so that the oscilloscope waveform eye pattern is good.
   (A good eye pattern means that the diamond shape (◇) in the center of the oscilloscope can be clearly distinguished.)

Volt/Div: 200 mV
Time/Div: 0.5 µSec



2. Tracking Offset Adjustment

Procedure:



1. Connect the oscilloscope to RF board test point TRGA, pin (1) of IC1.
2. Put the set into play mode by loading the disc.
3. Press the |◀◀ or ▶▶| (or ◀◀ , ▶▶) button, then check the traverse waveform*.
4. Adjust RV1 (main board) so that oscilloscope reading is symmetrical in relation to 0 V.

*Traverse waveform: This is the tracking error waveform appears when crossing the track.

Volt/Div: 0.5 V
Time Div: 2 mSec
Center 0 V

traverse wafeform
(100 track jump waveform)

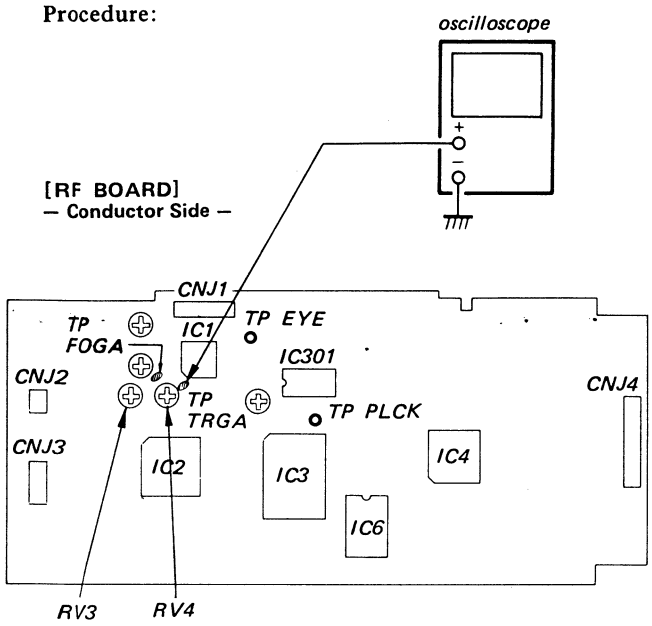
3. Tracking Gain Adjustment (coarse adjustment)

This adjustment is to be performed when replacing the following parts.

- Optical Pick-up Block
- RV4

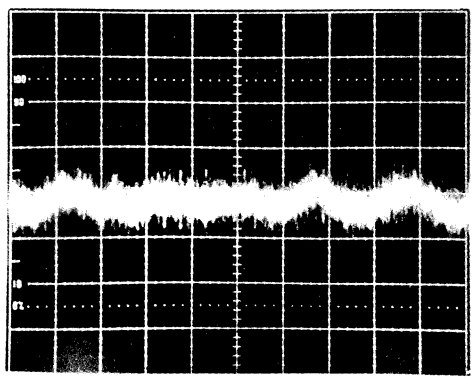
This adjustment should be performed after focus offset and tracking offset adjustments are completed.

Procedure:

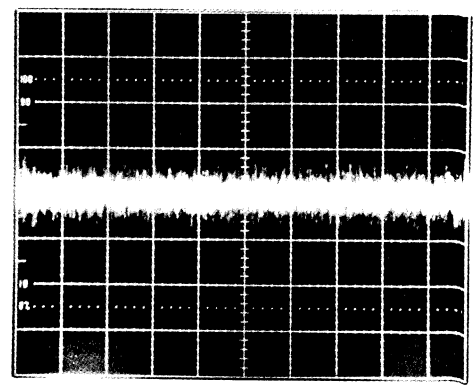


1. Connect the oscilloscope to RF board test point TRGA.
2. Put the set into play mode by loading the disc.
3. Turn RF board RV4 from clockwise stop, then check the oscilloscope waveform.
   Fix RV4 at the position where the waveform disappears.

Volt/Div: 0.5 V
Time/Div: 2 mSec

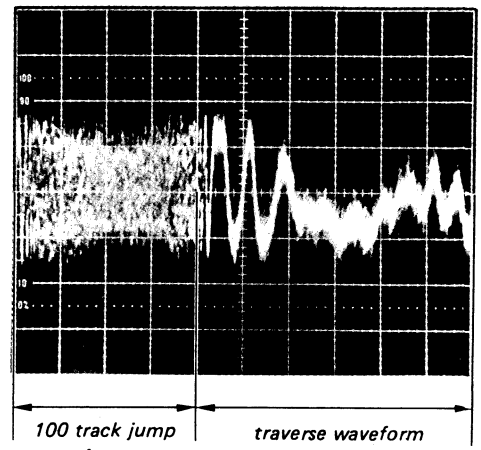


waveform when the wave appears

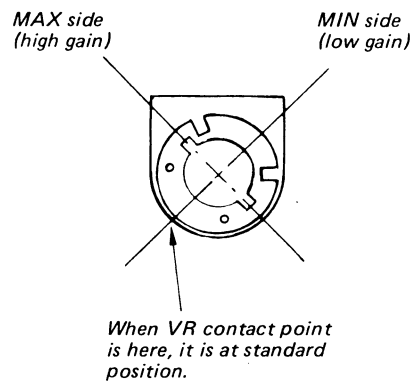


waveform when the wave disappeared

- **When gain is lowered . . .**
  When selecting by pressing |◀◀ or ▶▶| button, brake application is poor because of low tracking gain. Therefore, the traverse waveform appears after the 100 track jump waveform, then the selection will be located slowly.



- **When gain is highered . . .**
  Operation noise is heard due to a scratch or dust, then operation will be instability.



RV3 standard position

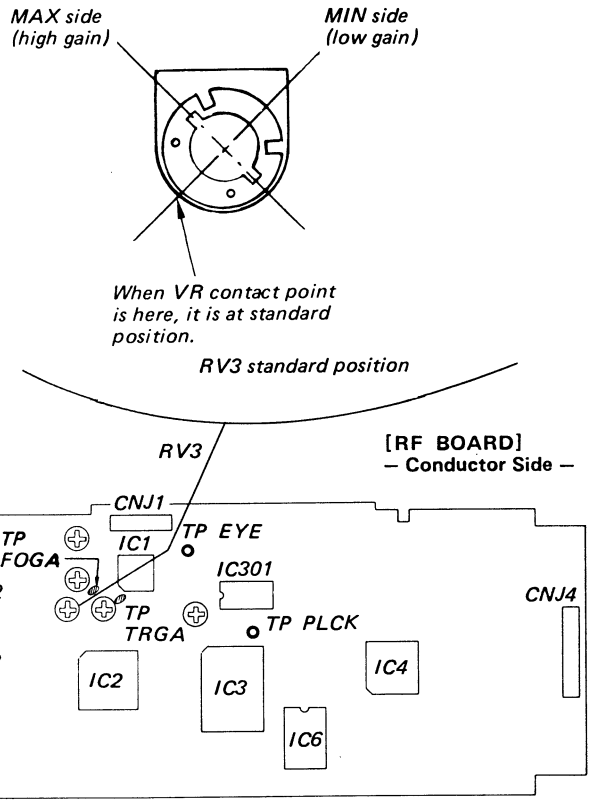
4. Focus Gain Adjustment (coarse adjustment)

This adjustment is to be performed when replacing the following parts.

- Optical Pick-up Block
- RV3

Procedure:

1. Set RV3 (RF board) to the standard position.
2. Check that there is not an abnormal amount of operation noise (white noise) from the 2-axis devise. If there is, turn RV3 slightly clockwise.

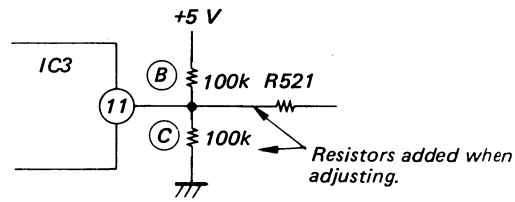


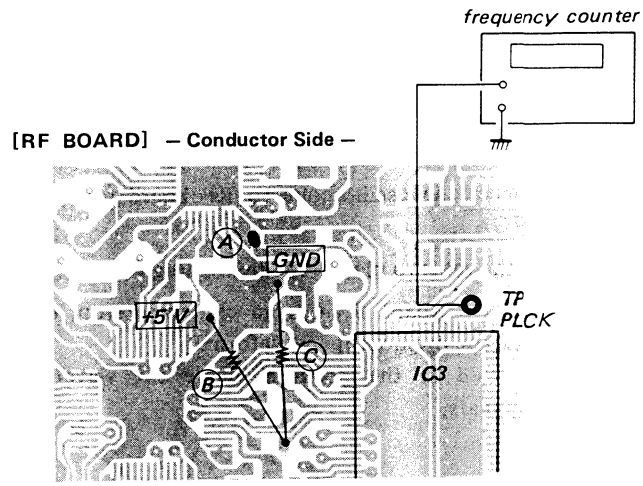
- **When gain is lowered . . .**
  The set does not play because of no focus operation.
- **When gian is highered . . .**
  Operation noise is heard due to a scratch or a dust, then operation will be unstable.

5. PLL Freerun Frequency Adjustment

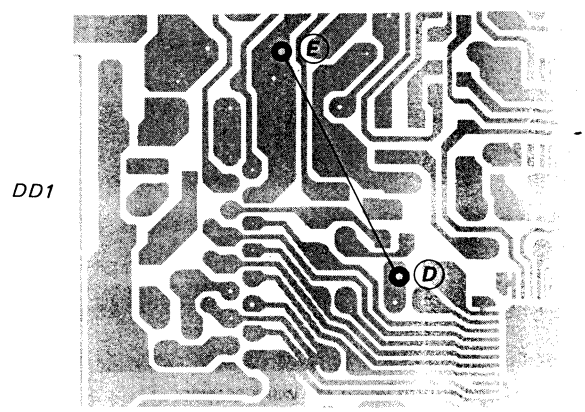
Procedure:

1. Unsolder the solder bridge at Ⓐ.
   (IC3 pin ⑤ is opened)
2. Connect 100 kΩ resistors to Ⓑ, Ⓒ.
   (This is to set the IC3 pin ⑪ voltage to 2.5 V)
3. Install a test jumper wire between Ⓓ and Ⓔ on the jack board to pull up the P/C terminal of the DC-DC converter ⊖.
4. Connect the frequency counter to RF board test point PLCK (IC3 pin ⑦⓪).
5. Turn the power switch on (Do not use the disc), then adjust RV5 so that the frequency is 4.3218 MHz ±10 kHz.
6. After adjusting, reset 1, 2 and 3 as original.





[JACK BOARD] – Conductor Side –



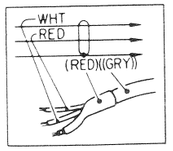
SECTION 3
DIAGRAMS

3-1. RF BOARD MOUNTING DIAGRAM

- See pages 21 – 23 for Schematic Diagram.
- See page 24 for Semiconductor Lead Layouts.

Note:

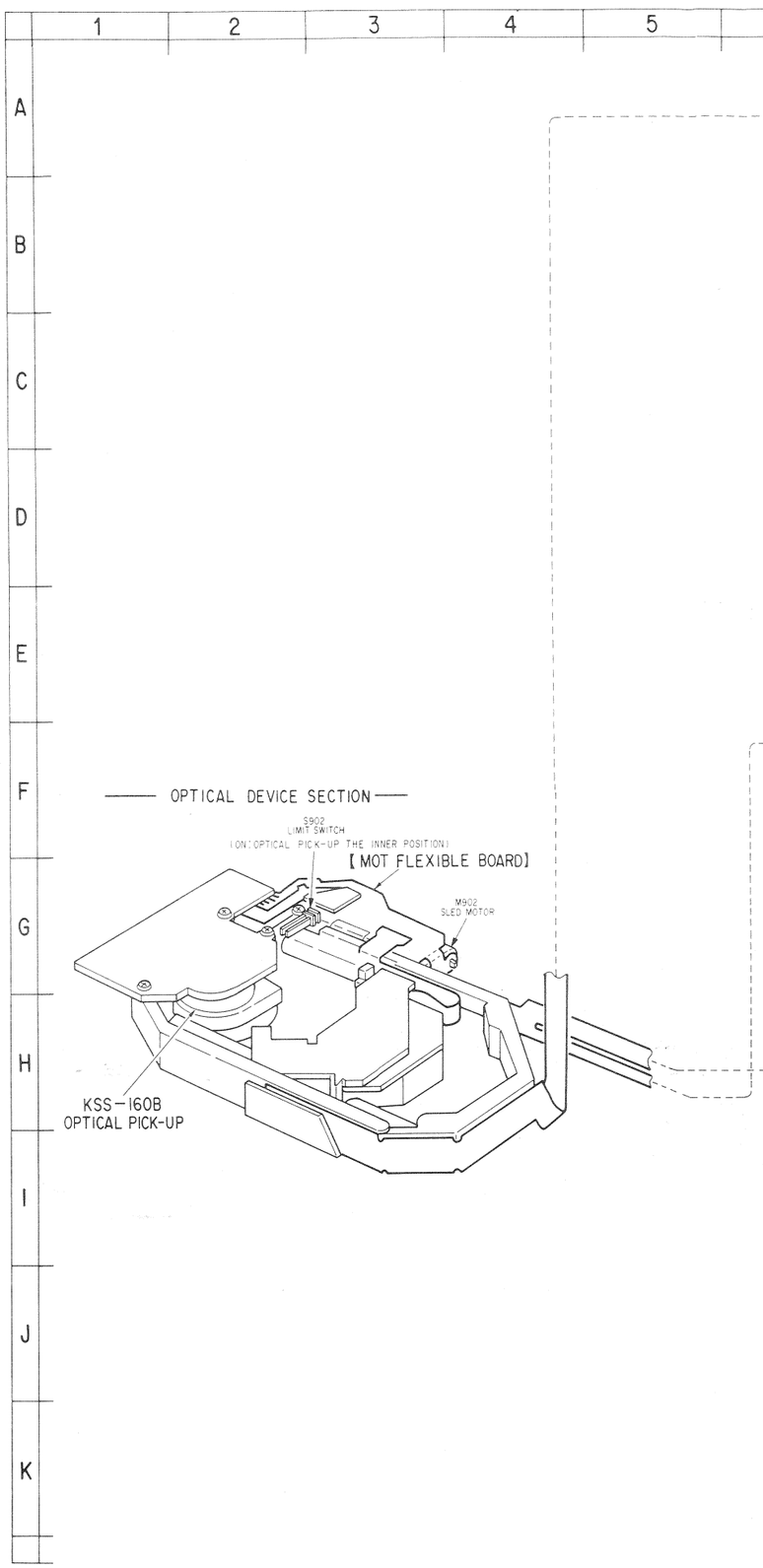
- Color code or sleeving over the end of the jacket.



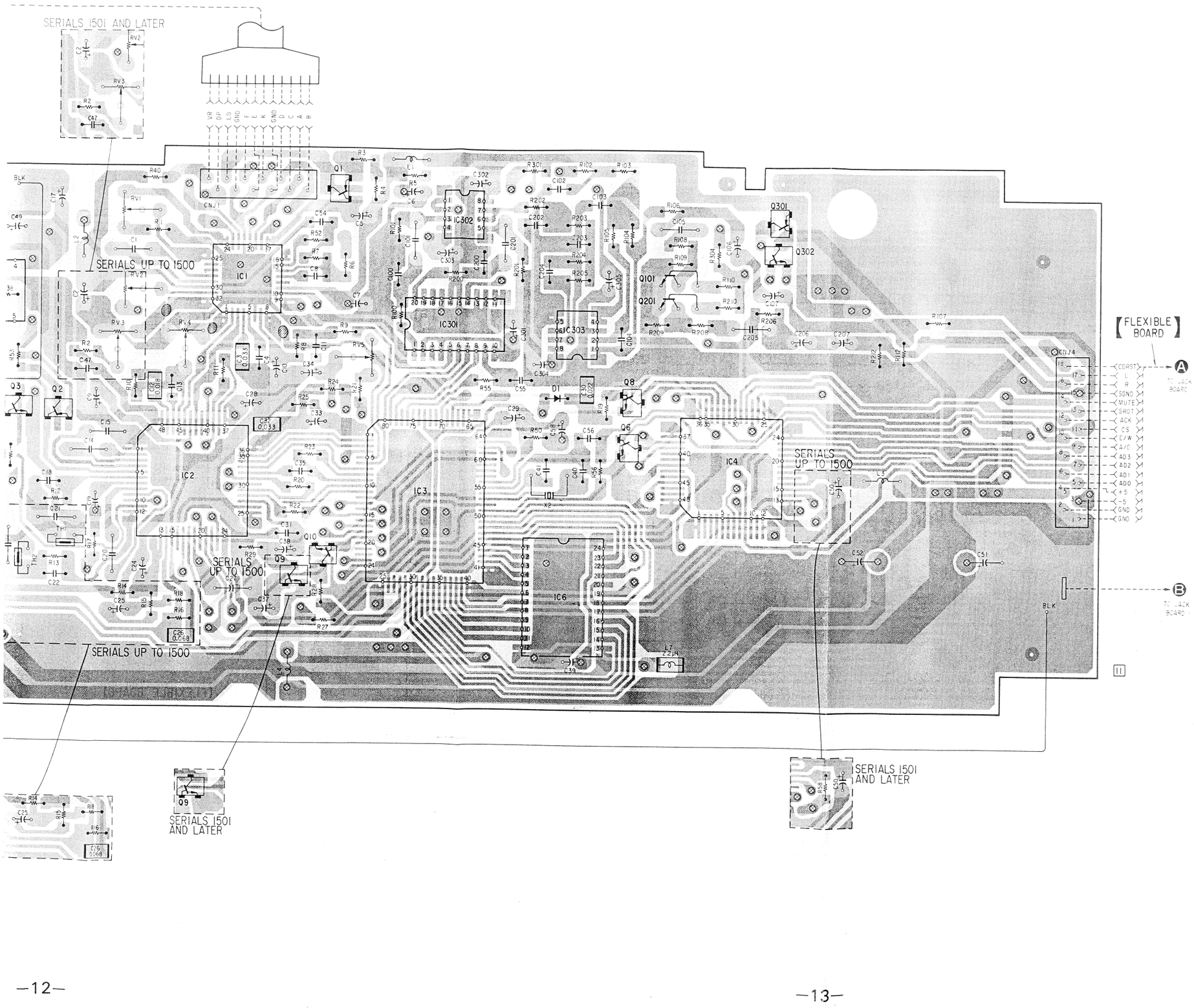
- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.
- : component-side pattern.

• SEMICONDUCTOR LOCATION

Ref. No.	Location
D1	E-15
IC1	D-12
IC2	F-11
IC3	F-14
IC4	F-17
IC5	D-9
IC6	H-15
IC301	E-14
IC302	C-14
IC303	E-15
Q1	C-13
Q2	F-10
Q3	F-9
Q4	F-9
Q5	F-8
Q6	F-16
Q8	E-16
Q9	G-12
Q10	G-13
Q101	D-16
Q201	D-16
Q301	C-18
Q302	D-18

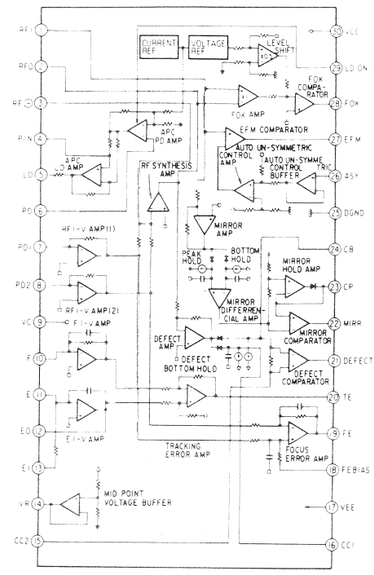


9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22

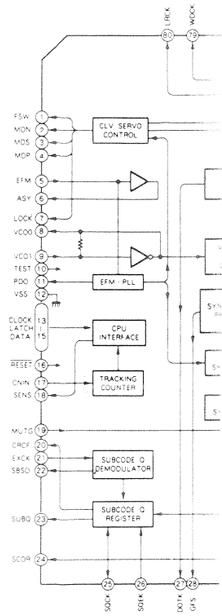


• IC BLOCK DIAGRAMS

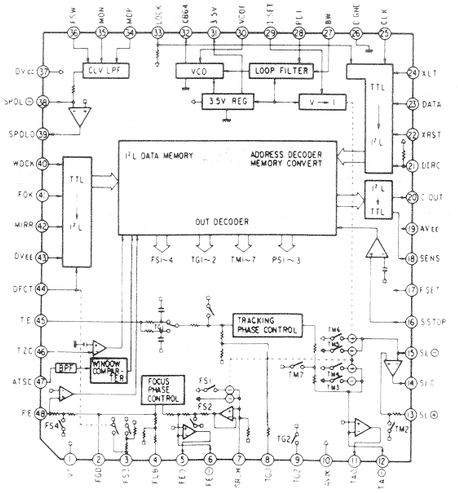
IC1 CXA-1081Q



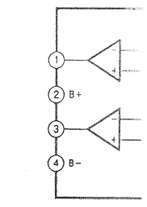
IC3 CXD1130Q



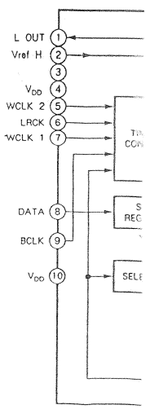
IC2 CXA1082AQ



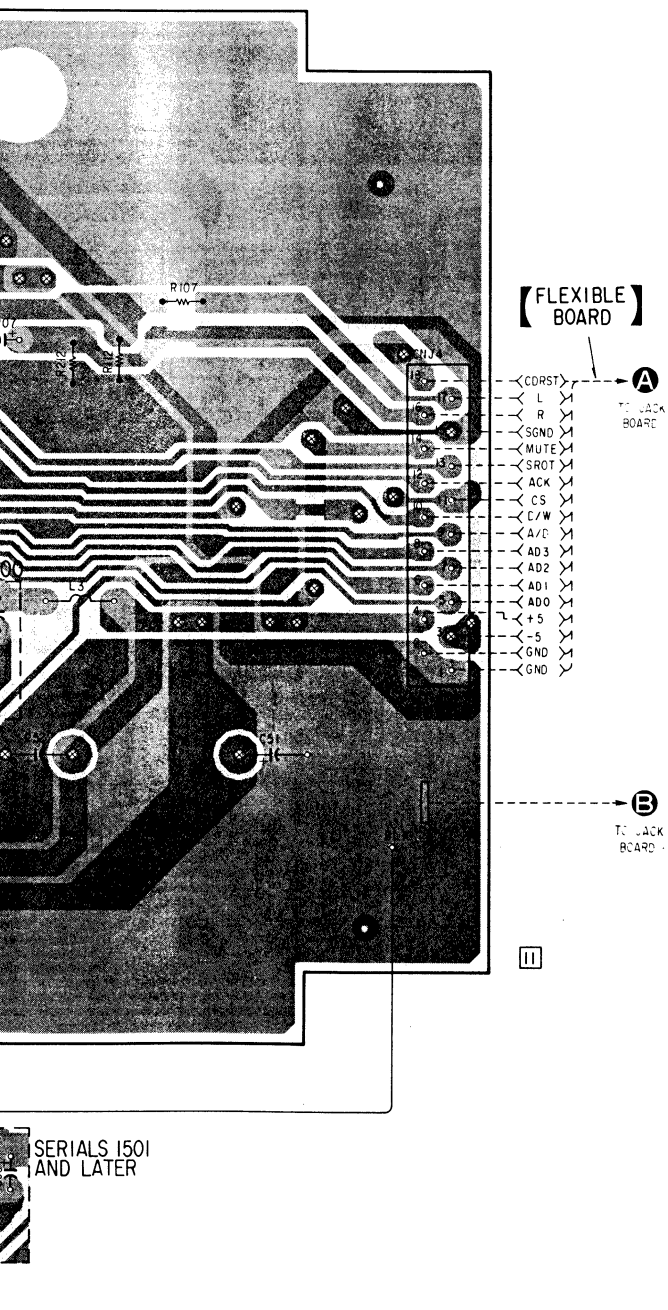
IC5 L27



IC301 L

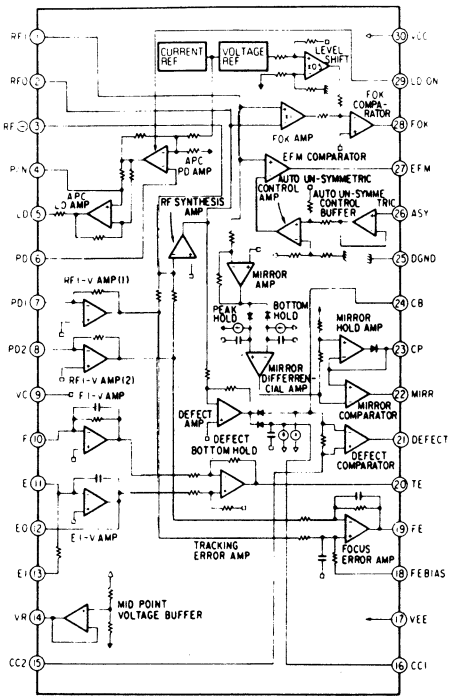


	19	20	21	22

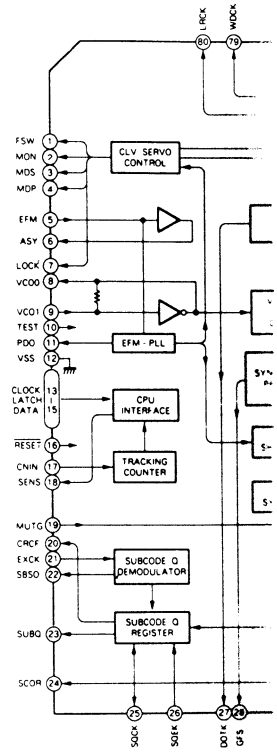


• IC BLOCK DIAGRAMS

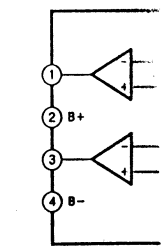
IC1 CXA-1081Q



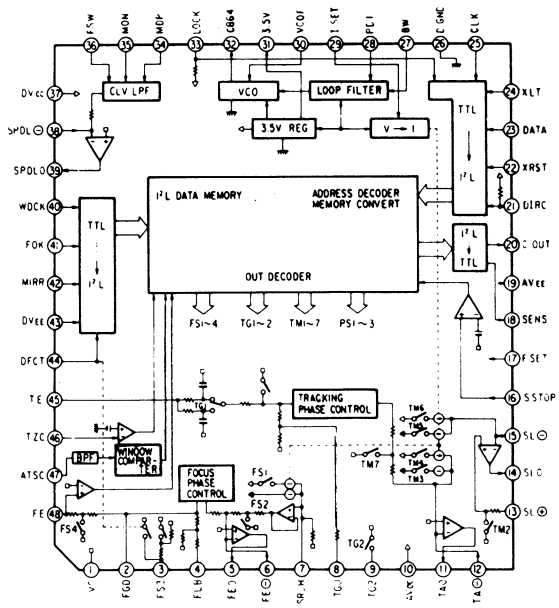
IC3 CXD1130Q



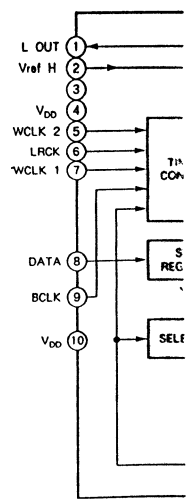
IC5 L27



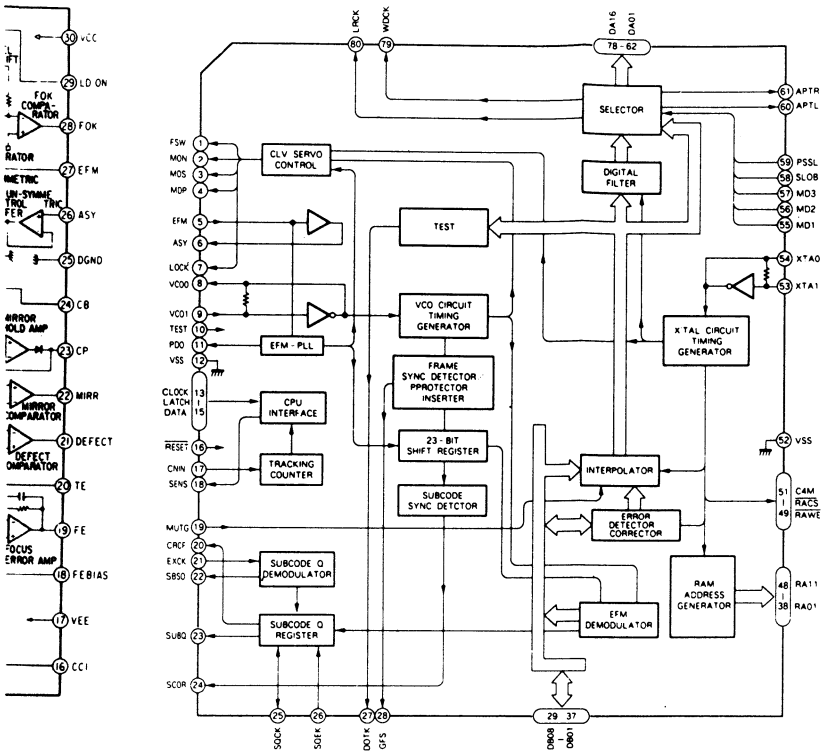
IC2 CXA1082AQ



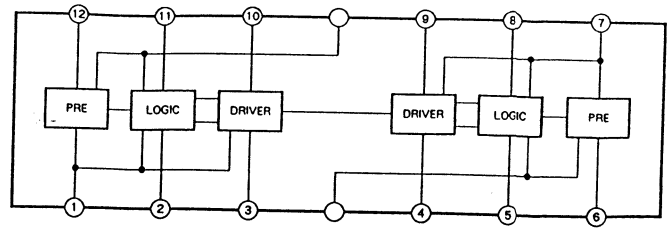
IC301 L



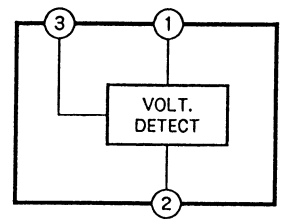
IC3 CXD1130Q



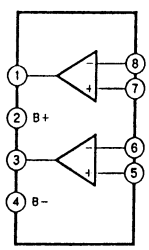
IC501, 507 LB1649



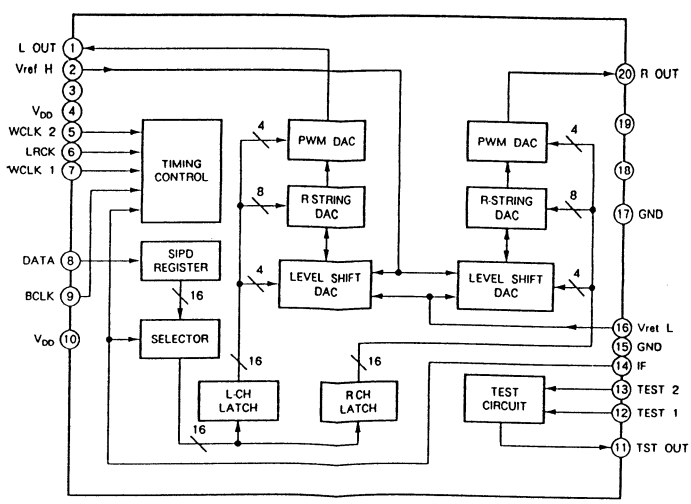
IC502 S-8054HN-CB



IC5 L272M



IC301 LC7880M



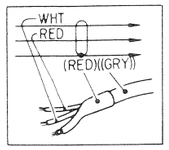
CDX-A20 CDX-A20

3-2. MOUNTING DIAGRAM

- See pages 11 – 13 for RF Board Mountind Diagram.
- See page 24 for Semiconductor Lead Layouts.

Note:

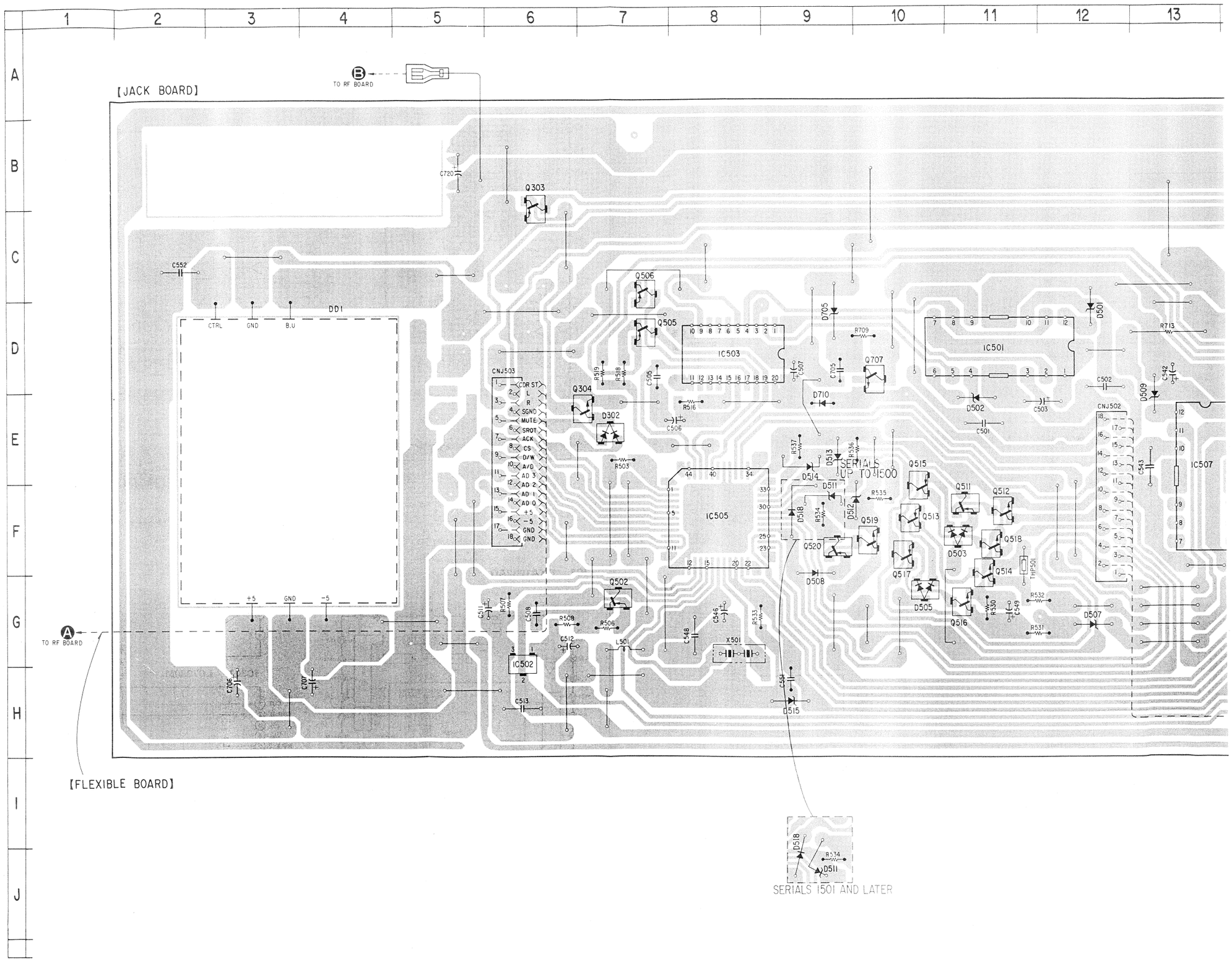
- Color code or sleeving over the end of the jacket.



- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.

• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D301	C-16	Q102	C-14
D302	E-7	Q202	C-15
D401	E-29	Q303	B-6
D402	J-30	Q304	E-7
D403	G-22	Q401	J-30
D404	G-22	Q402	E-29
D405	G-23	Q403	C-22
D501	D-12	Q502	G-7
D502	E-11	Q505	D-7
D503	F-11	Q506	C-7
D505	G-10	Q511	F-11
D507	G-12	Q512	F-11
D508	G-9	Q513	F-10
D509	E-13	Q514	F-11
D511	F-9	Q515	E-10
D512	F-9	Q516	G-11
D513	E-9	Q517	F-10
D514	E-9	Q518	F-11
D515	H-9	Q519	F-10
D518	F-9	Q520	F-9
D703	G-15	Q523	I-18
D704	D-15	Q524	J-18
D705	D-9	Q704	E-14
D706	G-15	Q705	D-15
D707	D-14	Q706	D-15
D708	D-15	Q707	D-10
D709	F-16	Q710	D-14
D710	E-9		
IC501	D-11		
IC502	H-6		
IC503	D-8		
IC505	F-8		
IC507	E-13		



15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

TO SHIELD

CNJ504

R306 R303 D301 R211 R305 L507

D703 R705 D708 Q706 R706 C719 L504 L505 R521 R520 R708 R711 C721 D709 R502 R710 R501 R505 C547 L506

CNP501 B9 A9 B1 A1

SERIALS UP TO 1500

(CHASSIS)

CNJ501

9	L/R	WHT/RED
7	S GND	
14	GND	
3	GND	
2	BUP	RED
12	CLCK OUT	S BLU
8	MUTE	VIO
6	RSET	BLU
4	DISP	YEL
10	DATA OUT	GRY
13	CLCK IN	WHT
11	DATA IN	BRN
1	ACC SW	ORG

1 2 3 4 5 6 7 8 9 10 11 12 13 14

【FLEXIBLE BOARD】

R540 R711 R541 Q523 R501 JW550 R505 Q524 R542 L506

SERIALS 1501 AND LATER

【EHS BOARD】

Q403 (PHOTO DET)

CNP412 CNJ412 CNJ405

BRN RED ORG ORG RED BRN

【RELAY BOARD】

CNJ402 CNP405 CNP404 CNJ401 CNP403 CNP401 D403 D404 D405 R403 220 YEL YEL

CNP402 CNP406

【FLEXIBLE BOARD】

CNJ404 BLK RED — RED MARK RED BLK — M1 EJECT/LEVER OUT

CNJ401 RED BLK — RED BLK — M3 ELEVATOR UP/DOWN

CNJ403 GRN GRN

【HOME SW BOARD】 CNP407 CNJ407 BLU BLU

SW104 HOME

CNJ402 BLU BLU

CNJ406 WHT WHT GRY GRY VIO VIO

CNJ410 WHT WHT

【EJECT SW BOARD】

SW107 EJECT CNP410

CNJ411 GRN GRN

【EJECT BOARD】 CNP411 SW101 (EJECT)

CNJ408 VIO VIO

SW105 LOT CNP408

【LOT SW BOARD】

CNJ409 GRY GRY

SW106 PST CNP409

【PST SW BOARD】

【CBP SW BOARD】

BLU BLU SW102 CBP

【M1 SW BOARD】

YEL YEL SW103 M1

CNJ201 BLU BLU YEL YEL

CNP201

【DOE BOARD】

BRN RED BRN RED

D401 Q402 (DISC DET)

R401

【ELV BOARD】

M2 SAVE/LOAD — BLK RED RED RED MARK

BLK RED BRN RED

R402 D402 Q401 (DISC DET)

【DPT BOARD】

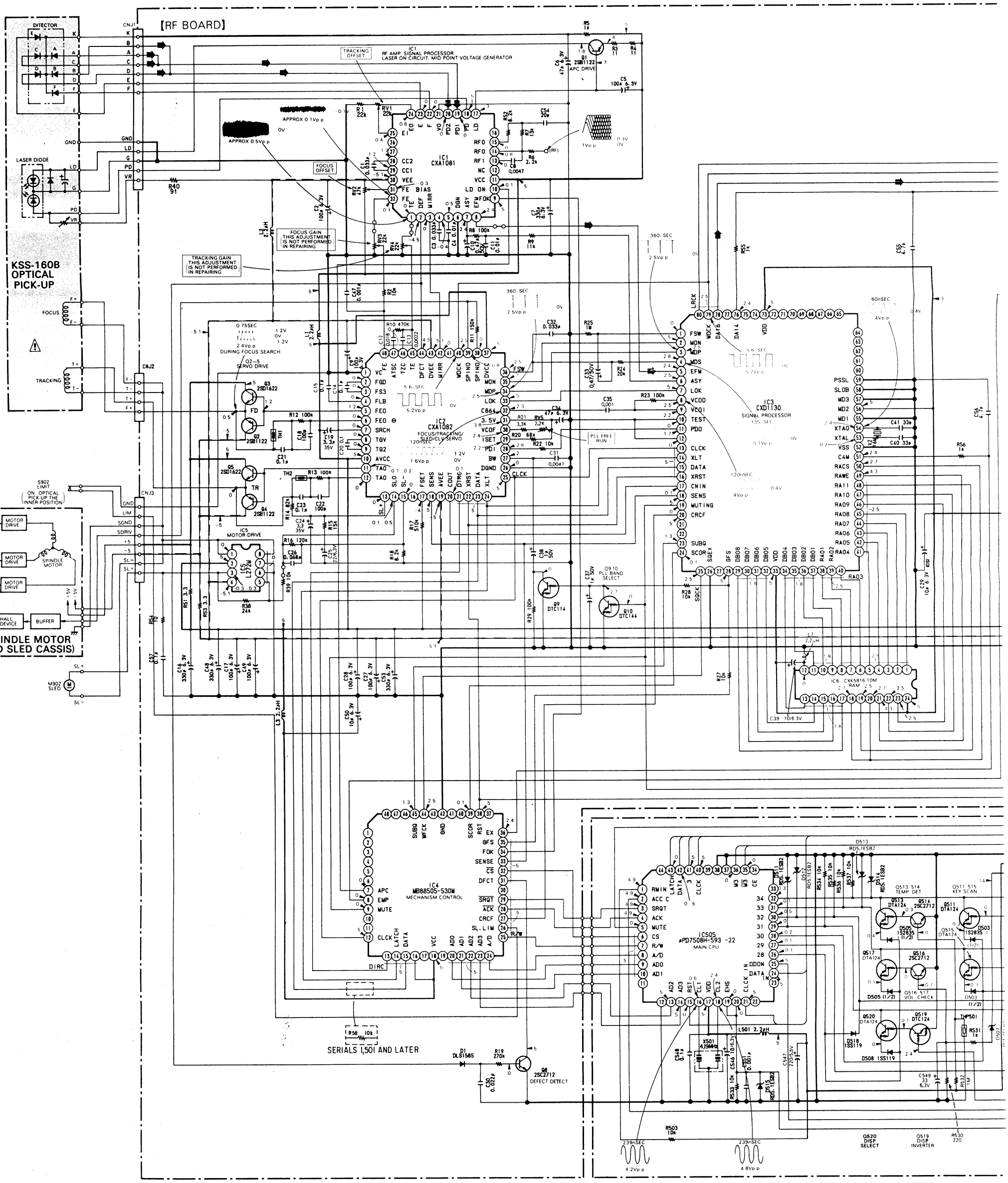
- **See pages 11 – 13 for RF Board Mounting Diagram.**
- **See page 14 for IC Block Diagrams.**

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ▬▬ : B+ bus.
- ▬ ▬ ▬ : B– bus.
- ▭ : adjustment for repair.
- ➡ : CD signal path.

- Power voltage fed with the regulated power supply via car stereo system.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).
  no mark : CD playing mode

- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken to ground in CD playing mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.


【RF BOARD】
KSS-160B OPTICAL PICK-UP
SPINDLE MOTOR (MD SLED CASSIS)
IC1 RF AMP, SIGNAL PROCESSOR LASER ON CIRCUIT, MID POINT VOLTAGE GENERATOR
IC1 CXA1081
IC2 CXA1082 FOCUS/TRACKING/SLED/CLV SERVO
IC3 CXD1130 SIGNAL PROCESSOR
IC4 MB88505-530M MECHANISM CONTROL
IC5 MOTOR DRIVE L272M
IC505 μPD7508H-593 -22 MAIN CPU
IC6 CXK5816-10M RAM
TRACKING OFFSET
FOCUS OFFSET
FOCUS GAIN THIS ADJUSTMENT IS NOT PERFORMED IN REPAIRING
TRACKING GAIN THIS ADJUSTMENT IS NOT PERFORMED IN REPAIRING
APPROX 0.1Vp-p
APPROX 0.5Vp-p
PLL FREE RUN
SERIALS 1,501 AND LATER

11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22

A B C D E F G H I J K L M N O

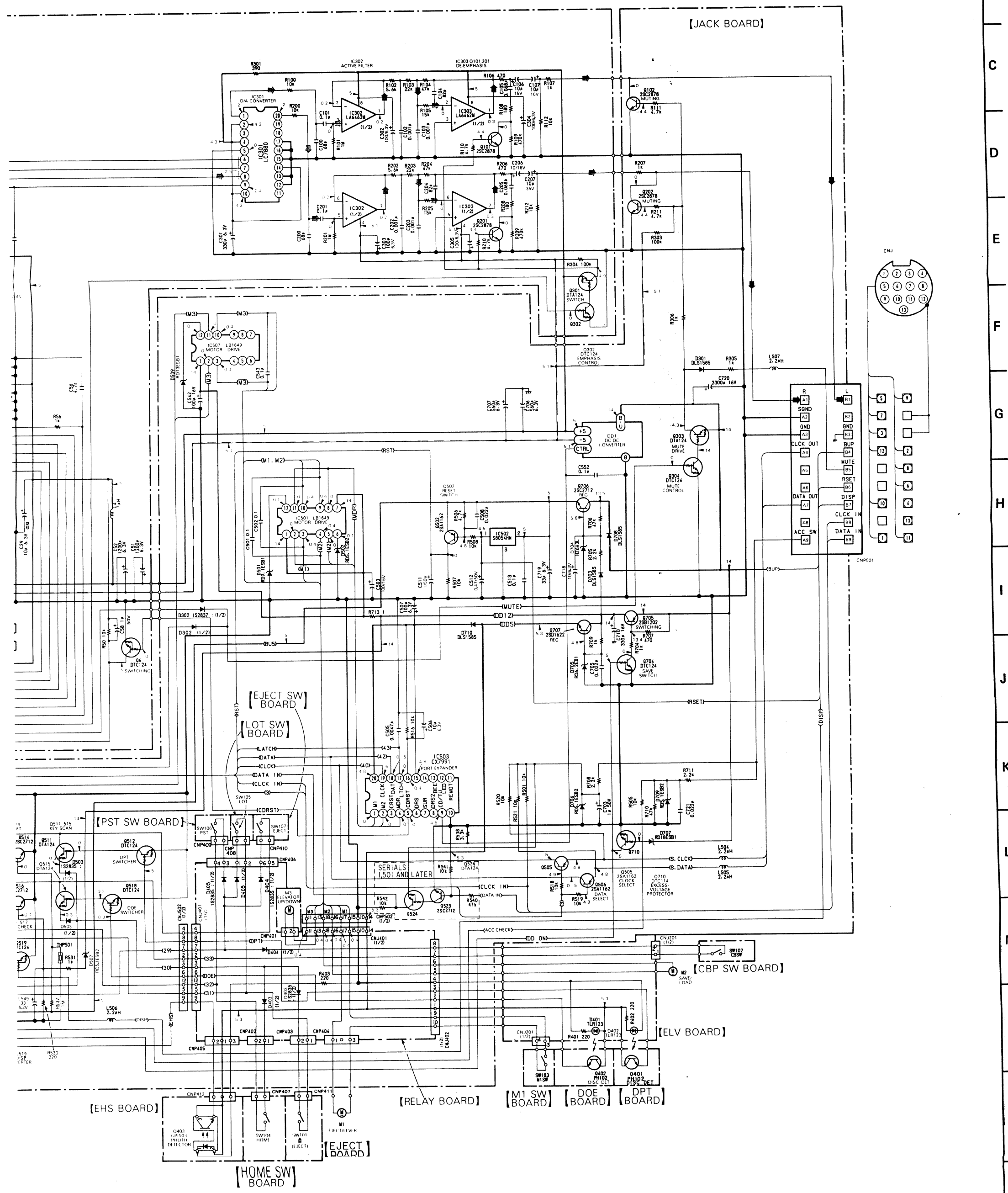
mal produc-

ng mode by

mal produc-

- Switch

Ref. No.	Switch	Position
SW101	EJECT ▲	OFF
SW102	CBP	OFF
SW103	M1	OFF
SW104	HOME	OFF
SW105	LOT	OFF
SW106	PST	OFF
SW107	(EJECT)	OFF

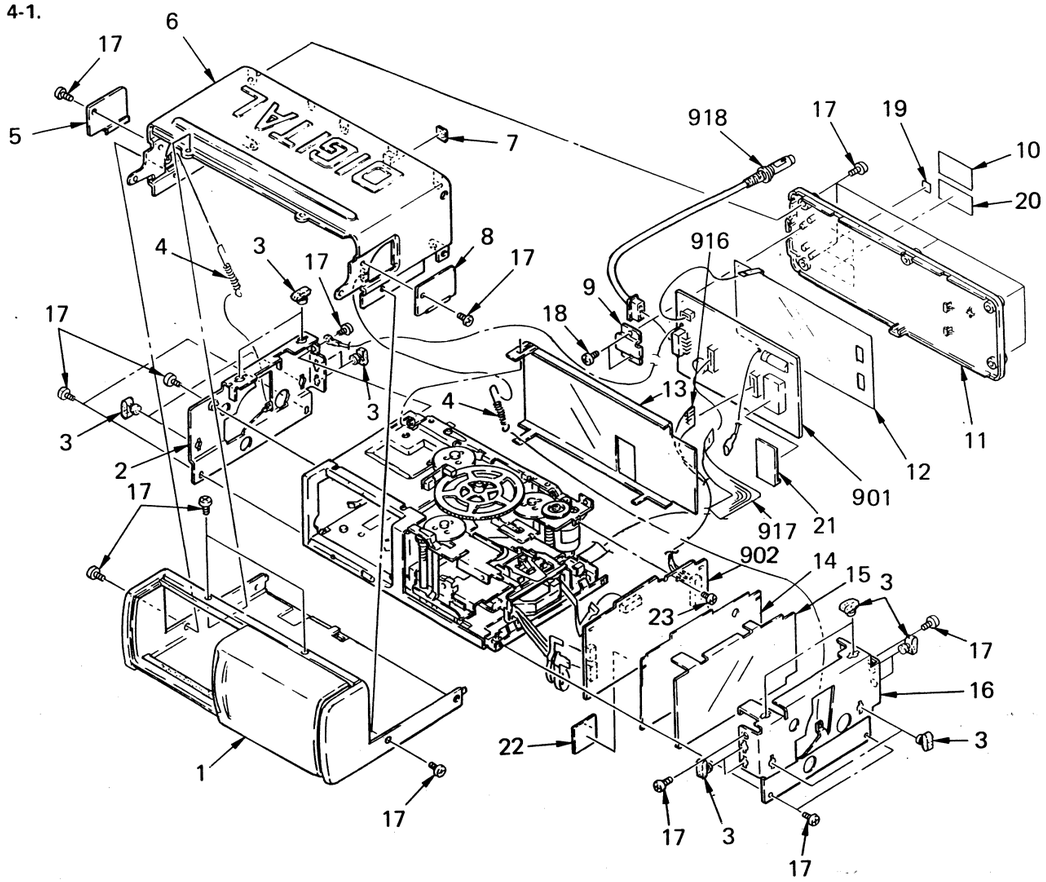


SECTION 4
EXPLODED VIEWS AND PARTS LIST

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

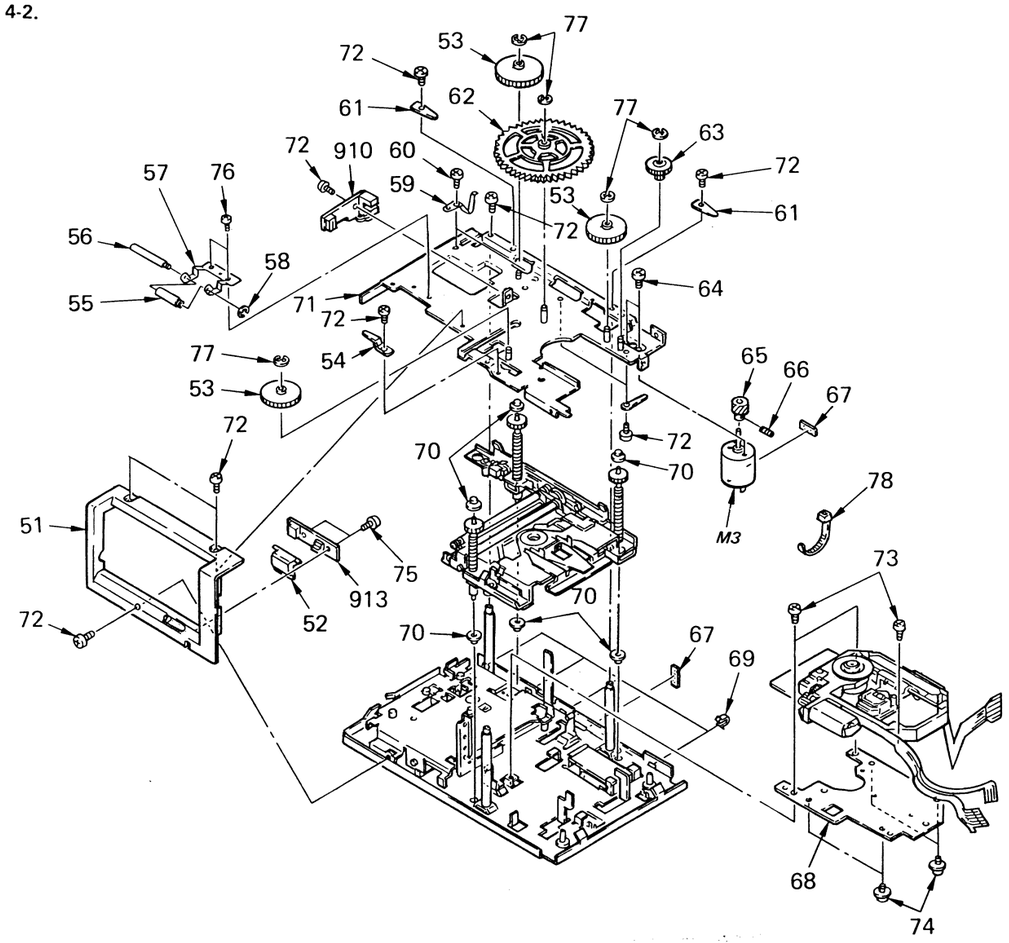
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-1.



No.	Part No.	Description	Remarks
1	X-3329-569-2	NOSE PIECE ASSY	
2	*3-333-071-01	BRACKET (LEFT), I DAMPER	
3	3-343-730-01	I DAMPER	
4	3-333-068-01	SPRING (FLOATING), TENSION	
5	3-333-069-01	COVER (LEFT), SIDE	
6	3-333-080-01	CASE, UPPER	
7	3-831-441-11	CUSHION	
8	3-333-070-01	COVER (RIGHT), SIDE	
9	3-333-065-01	RETAINER, 18P CONNECTOR	
10	*3-333-061-01	LABEL, MODEL NUMBER (U/AE/E)	
11	3-333-078-01	CASE, BOTTOM	
12	*3-333-074-03	PLATE, SHIELD	
13	*3-333-066-01	SHEET (LARGE), INSULATING	
14	*3-343-732-03	PLATE, SHIELD (SMALL)	
15	*3-333-073-01	SHEET (SMALL), INSULATING	
16	*3-333-072-01	BRACKET (RIGHT), I DAMPER	
17	7-682-546-09	SCREW +B 3X5	
18	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
19	*3-343-736-01	LABEL, SP	
20	*4-885-838-01	LABEL, CLASS 1	
21	3-343-739-01	PROTECTOR, FPC	
22	3-343-738-01	CUSHION, RF	
23	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
901	*A-3265-015-A	MOUNTED PCB, JACK	
902	*A-3265-016-A	MOUNTED PCB, RF	
916	1-623-641-11	PC BOARD, RF FLEXIBLE	
917	1-623-642-11	PC BOARD, TRANSLATION FLEXIBLE	
918	1-559-439-11	CORD (WITH CONNECTOR)	

4-2.



No.	Part No.	Description	Remarks
51	3-343-724-01	ESCUTCHEON	
52	3-343-712-01	BUTTON, EJECT	
53	3-331-916-01	GEAR (MIDDLE), ELEVATOR	
54	*3-333-082-01	RETAINER, SCREW, FEED	
55	3-343-708-01	ROLLER, MAGAZINE	
56	*3-343-711-01	SHAFT, ROLLER, MAGAZINE	
57	3-343-710-01	SPRING	
58	7-624-102-04	STOP RING 1.5, TYPE -E	
59	3-343-709-01	SPRING	
60	7-621-775-00	SCREW +B 2.6X3	
61	3-331-907-01	RETAINER, SCREW, FEED	
62	3-331-952-02	GEAR (LARGE), ELEVATOR	
63	3-343-707-01	GEAR (SMALL), ELEVATOR	
64	7-682-144-01	SCREW +P 3X3	
65	4-917-404-02	GEAR, MOTOR	
66	7-621-731-08	SET-SCT, HEX. 2X2.5, FLAT POINT	
67	3-831-441-11	CUSHION	
68	*3-343-714-01	BRACKET, FOP	
69	3-660-815-00	CLIP, CABLE	
70	3-333-081-01	BEARING (UPPER & LOWER)	
71	*X-3329-567-1	PLATE ASSY, TOP	
72	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
73	7-621-255-25	SCREW +BVTT 2X4 (S)	
74	7-685-103-14	+ PTPWH (2X5)	
75	7-685-132-11	SCREW +P 2.6X5 TYPE2 NON-SLIT	
76	7-621-255-15	SCREW +P 2X3	
77	7-624-118-01	RING, RETAINING E-2.5	
78	3-671-893-01	CLAMP	
910	*1-622-793-11	PC BOARD, EHS	
913	*1-622-796-11	PC BOARD, EJECT	
M3	1-541-309-11	MOTOR, L (RF-370C)	

4-3.

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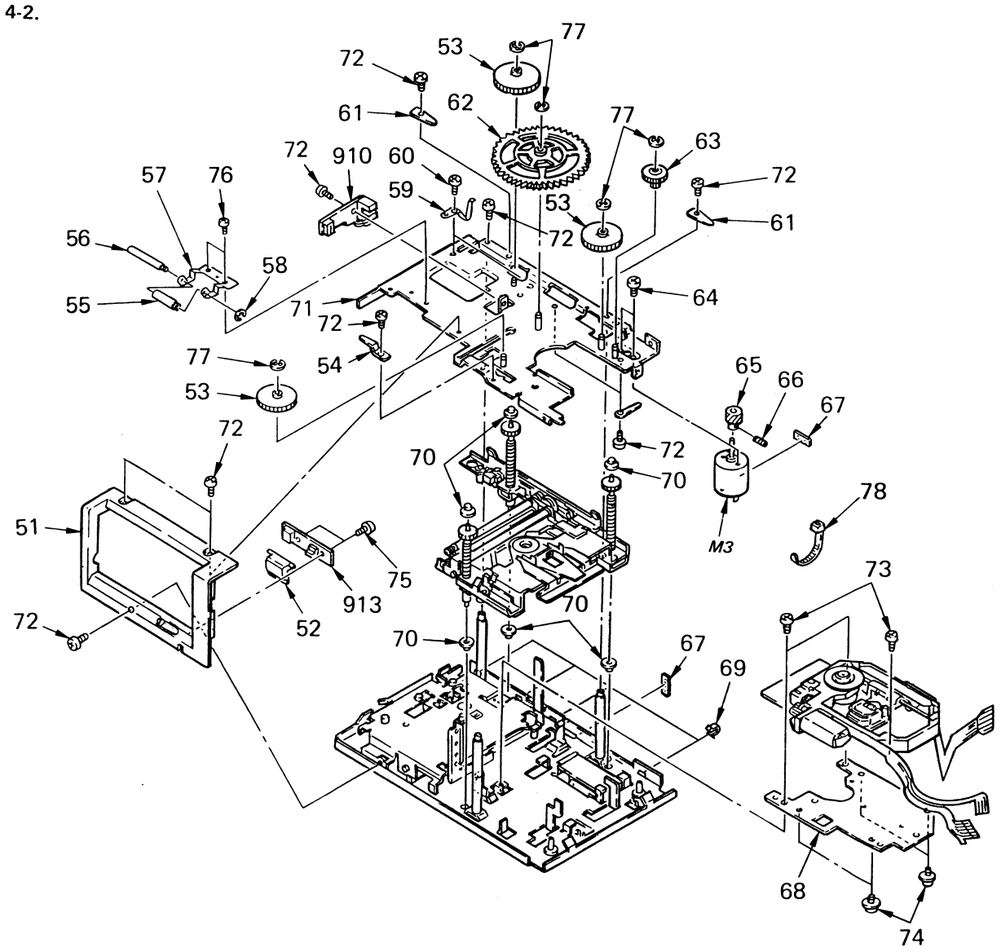
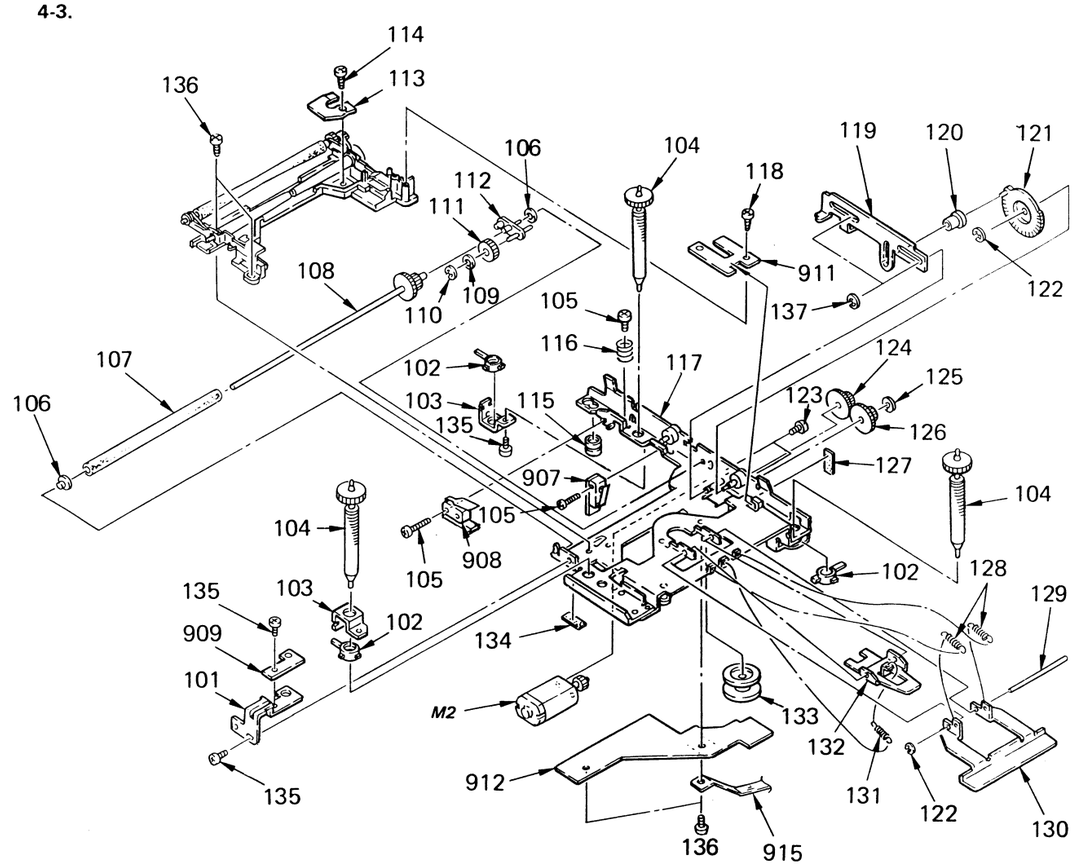
4-2.



No.	Part No.	Description	Remarks
51	3-343-724-01	ESCUTCHEON	
52	3-343-712-01	BUTTON, EJECT	
53	3-331-916-01	GEAR (MIDDLE), ELEVATOR	
54	*3-333-082-01	RETAINER, SCREW, FEED	
55	3-343-708-01	ROLLER, MAGAZINE	
56	*3-343-711-01	SHAFT, ROLLER, MAGAZINE	
57	3-343-710-01	SPRING	
58	7-624-102-04	STOP RING 1.5, TYPE -E	
59	3-343-709-01	SPRING	
60	7-621-775-00	SCREW +B 2.6X3	
61	3-331-907-01	RETAINER, SCREW, FEED	
62	3-331-952-02	GEAR (LARGE), ELEVATOR	
63	3-343-707-01	GEAR (SMALL), ELEVATOR	
64	7-682-144-01	SCREW +P 3X3	
65	4-917-404-02	GEAR, MOTOR	
66	7-621-731-08	SET-SCT, HEX. 2X2.5, FLAT POINT	

No.	Part No.	Description	Remarks
67	3-831-441-11	CUSHION	
68	*3-343-714-01	BRACKET, FOP	
69	3-660-815-00	CLIP, CABLE	
70	3-333-081-01	BEARING (UPPER & LOWER)	
71	*X-3329-567-1	PLATE ASSY, TOP	
72	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
73	7-621-255-25	SCREW +BVTT 2X4 (S)	
74	7-685-103-14	+ PTPWH (2X5)	
75	7-685-132-11	SCREW +P 2.6X5 TYPE2 NON-SLIT	
76	7-621-255-15	SCREW +P 2X3	
77	7-624-118-01	RING, RETAINING E-2.5	
78	3-671-893-01	CLAMP	
910	*1-622-793-11	PC BOARD, EHS	
913	*1-622-796-11	PC BOARD, EJECT	
M3	1-541-309-11	MOTOR, L (RF-370C)	

4-3.



No.	Part No.	Description	Remarks
101	*3-333-092-01	BRACKET (S), PHOTO	
102	3-329-560-01	SCREW, M6	
103	*3-329-570-03	PLATE, SCREW	
104	X-3329-554-1	SCREW ASSY, FEED	
105	7-621-772-40	SCREW +B 2X8	
106	3-329-558-01	BEARING, MAIN ROLLER	
107	3-323-231-02	ROLLER (LOWER)	
108	X-3329-520-1	SHAFT (LOWER) ASSY, ROLLER	
109	3-329-553-01	SPRING, E	
110	3-321-813-11	WASHER, COTTER POLYETHYLENE	
111	3-329-555-01	GEAR (E), R	
112	*X-3329-522-1	LEVER ASSY, R	
113	*3-333-006-01	REINFORCEMENT	
114	7-621-770-67	SCREW +B 2.6X6	
115	3-329-551-01	METAL (B), SHAFT	
116	3-534-512-01	SPRING, COMPRESSION	
117	*X-3329-565-2	CHASSIS ASSY, E	
118	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
119	*3-331-944-01	LEVER, SLIDE	
120	3-329-547-01	ROLLER, IDLE	
121	3-331-943-01	GEAR (F), R	
122	7-624-102-04	STOP RING 1.5, TYPE -E	

No.	Part No.	Description	Remarks
123	7-621-255-10	SCREW +P 2X3	
124	3-333-099-01	GEAR (A)	
125	3-895-818-01	WASHER, POLYETHYLENE, COTTER	
126	3-343-701-01	GEAR (B)	
127	3-509-149-00	CUSHION	
128	3-571-823-00	SPRING, TENSION	
129	3-333-098-02	SHAFT, DISK CHUCK	
130	*X-3329-566-1	STOPPER ASSY, CD	
131	3-535-369-XX	SPRING, TENSION	
132	3-343-718-02	BRACKET, DISK CHUCK	
133	3-343-717-01	PLATE (M), CHUCK	
134	3-831-441-11	CUSHION	
135	7-621-255-25	SCREW +BVTT 2X4 (S)	
136	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
137	7-624-104-04	STOP RING 2.0, TYPE -E	
907	*1-622-790-11	PC BOARD, MI	
908	*1-622-791-11	PC BOARD, CB	
909	*1-622-792-11	PC BOARD, DPT	
911	*1-622-794-11	PC BOARD, DOE	
912	*1-622-795-11	PC BOARD, LED	
915	1-623-640-11	PC BOARD, MD FLEXIBLE	
M2	X-3329-560-1	MOTOR ASSY, M2	

- **Semiconductor Lead Layouts**

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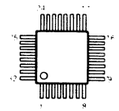

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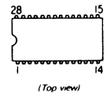

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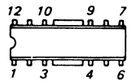

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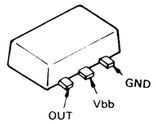

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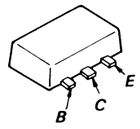

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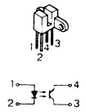

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RD5.1ES-B2
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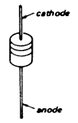

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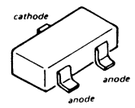

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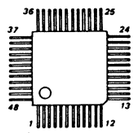

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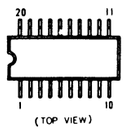

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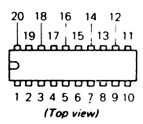

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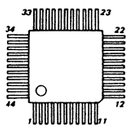

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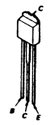

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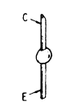

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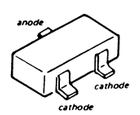

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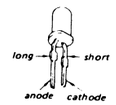

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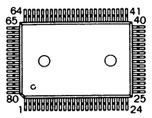
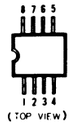


MARKING SIDE VIEW

LA6462M



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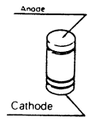

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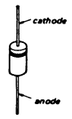

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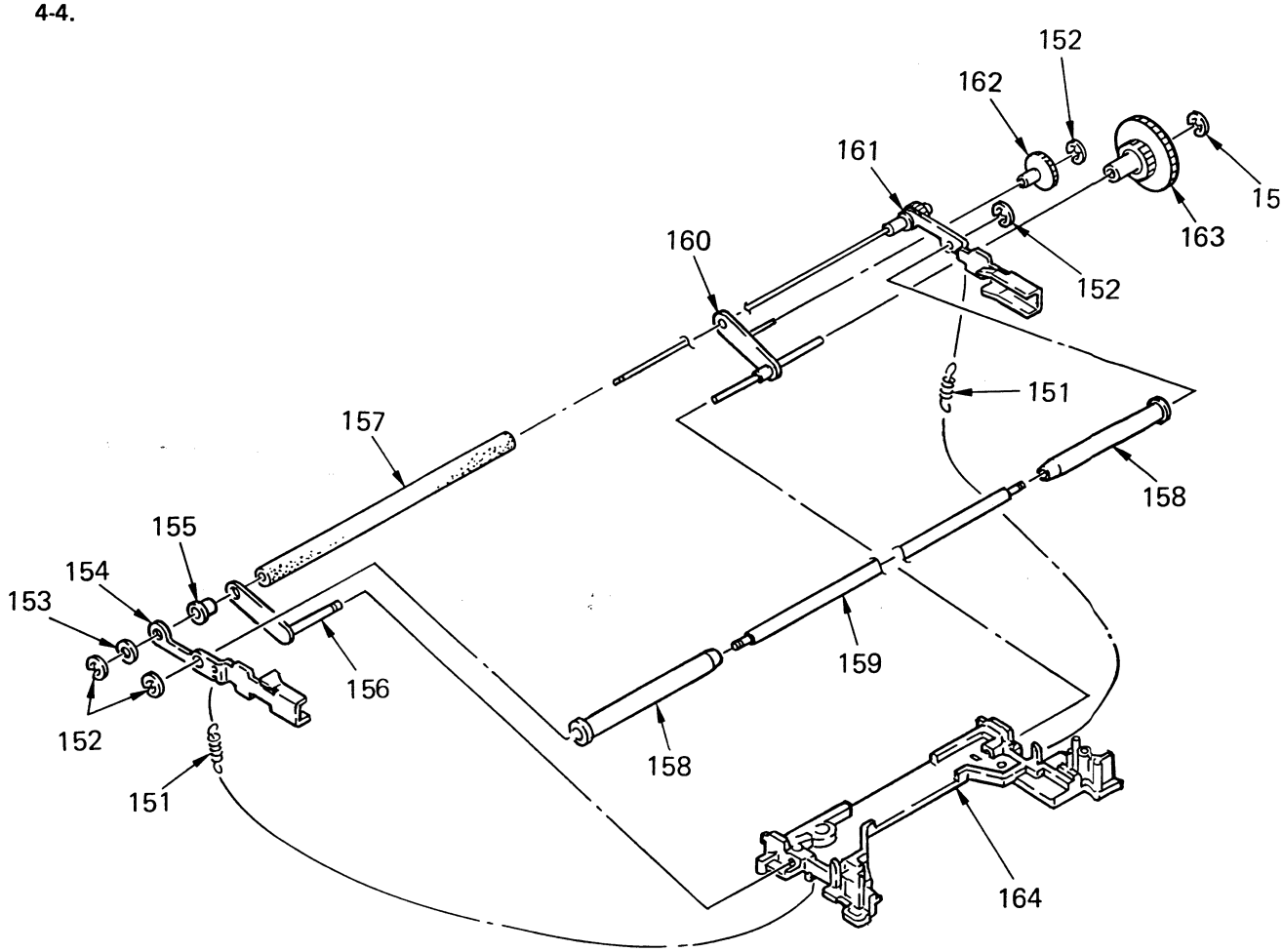
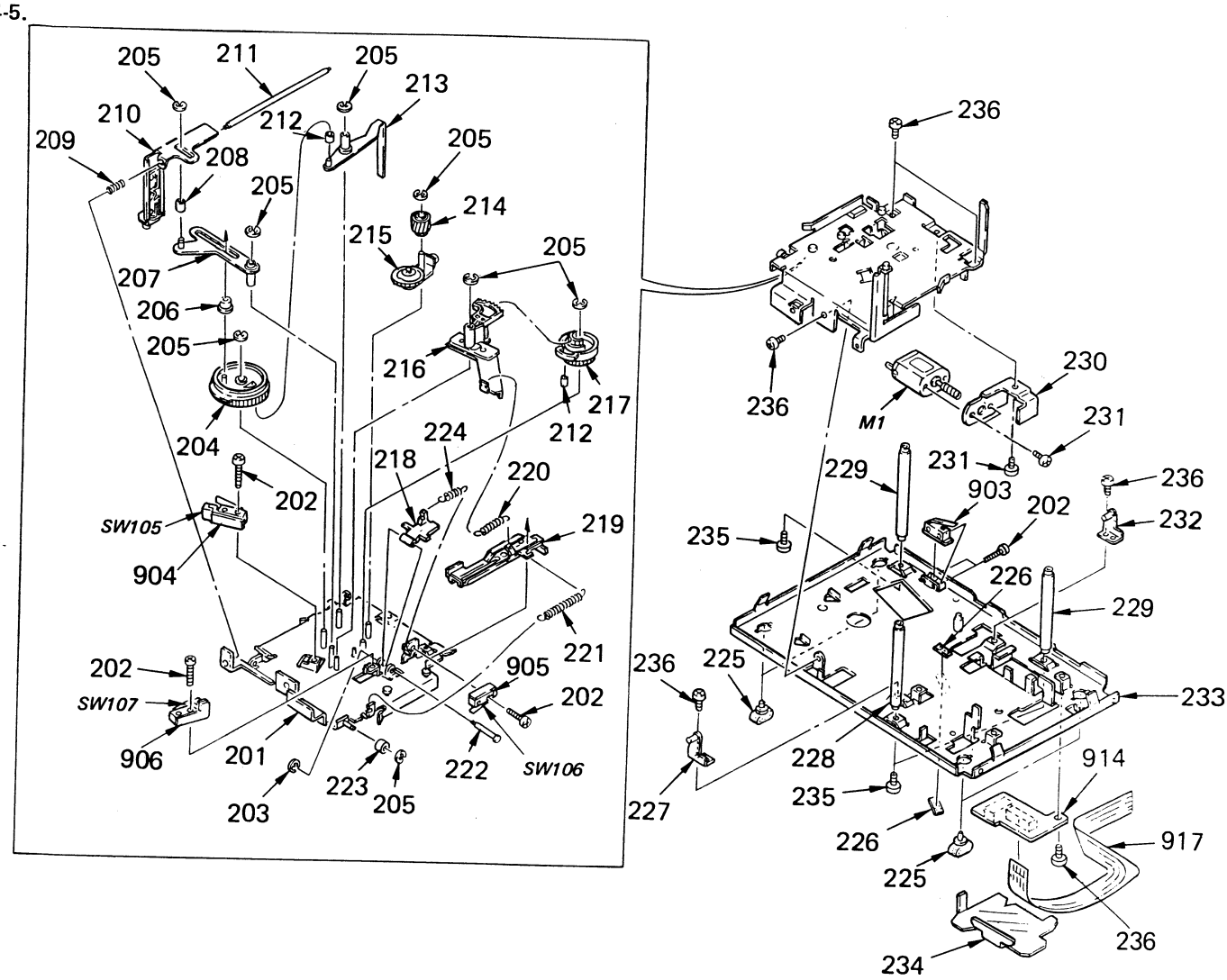


No.	Part No.	Description	Remarks
151	3-547-665-00	SPRING, TENSION	
152	7-624-102-04	STOP RING 1.5, TYPE -E	
153	3-310-958-00	WASHER (R)	
154	*3-343-706-01	LINK, DISK	
155	*3-331-925-01	BEARING, ROLLER STOPPER	
156	*X-3329-517-1	LEVER (F) ASSY, LINK	
157	3-323-231-02	ROLLER (LOWER)	
158	X-3329-518-1	ROLLER (UPPER) ASSY	
159	*3-329-552-01	SHAFT, SIDE ROLLER	
160	*X-3329-516-1	LEVER (B) ASSY, LINK	
161	X-3329-561-1	SHAFT (UPPER) ASSY, ROLLER	
162	3-331-924-01	GEAR (G), ROLLER	
163	3-331-914-01	GEAR, ROLLER 3 STEP	
164	3-331-957-07	GUIDE, DISK	

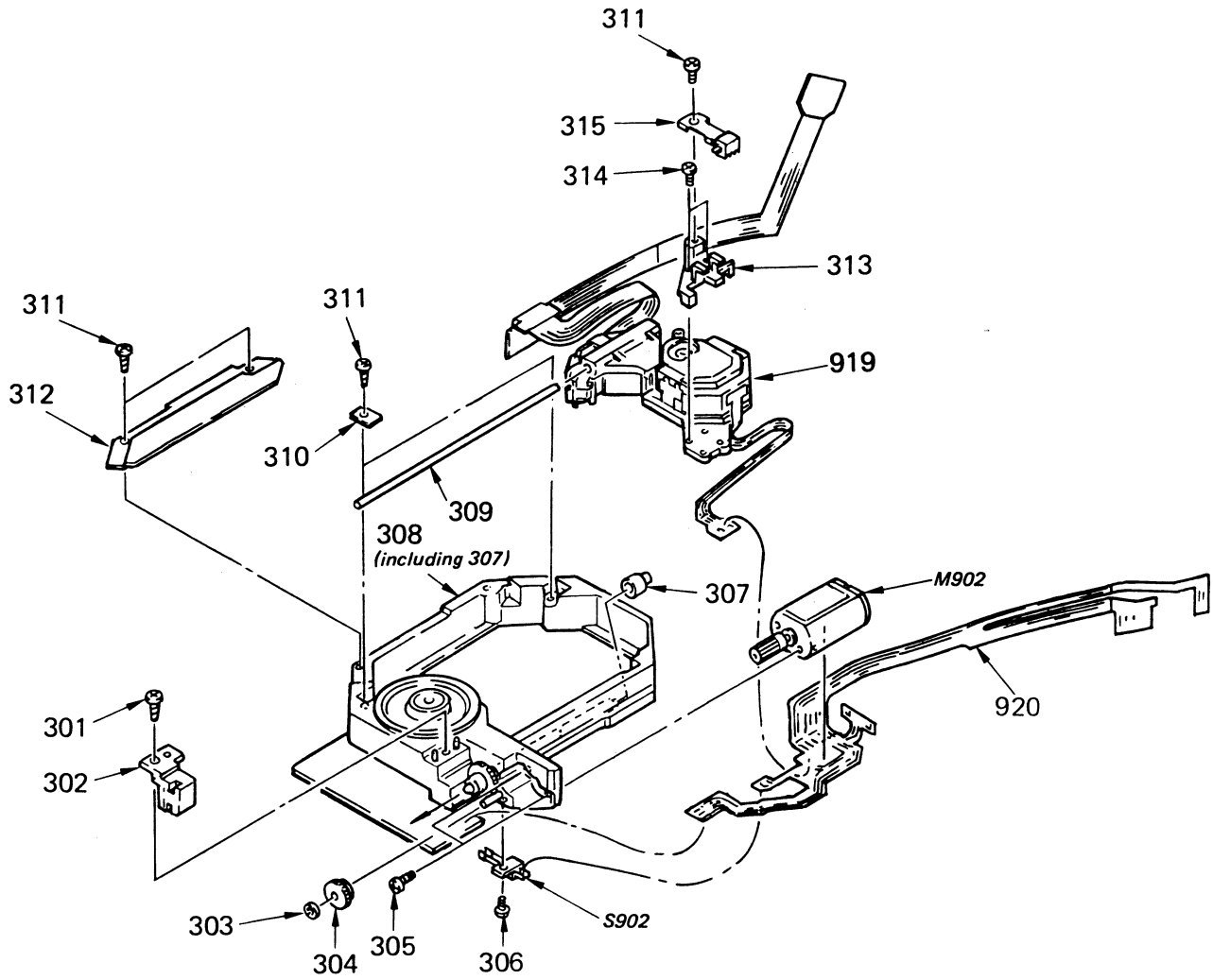
4-5.



No.	Part No.	Description	Remarks
201	*X-3329-563-1	CHASSIS ASSY, PACK	
202	7-685-855-01	+BVTT 2X10 (S)	
203	7-624-102-04	STOP RING 1.5, TYPE -E	
204	X-3329-513-2	GEAR ASSY, CAM	
205	7-624-104-04	STOP RING 2.0, TYPE -E	
206	3-331-905-01	ROLLER (A)	
207	*X-3329-507-1	LEVER ASSY, LINEAR	
208	3-331-927-01	ROLLER, LINEAR LEVER	
209	3-568-315-01	SPRING, COMPRESSION	
210	X-3329-558-1	SLIDER ASSY, LINEAR	
211	3-331-904-01	SHAFT, LINEAR SLIDER	
212	3-329-580-01	ROLLER, CAM	
213	*X-3329-510-1	LEVER ASSY, SLIDER SET	
214	3-333-088-01	WHEEL, WORM	
215	X-3329-557-1	GEAR ASSY	
216	X-3329-511-5	LEVER ASSY, SOFT EJECT	
217	3-331-951-01	GEAR (2), EJECT CAM	
218	3-333-087-01	HOOK, BACK LOCK	
219	*3-331-913-04	EJECTOR (2), SOFT	
220	3-343-723-01	SPRING, TENSION	
221	3-634-191-XX	SPRING, TENSION	
222	*3-329-573-01	SHAFT, LOCK HOOK	

No.	Part No.	Description	Remarks
223	4-917-431-01	ROLLER, PACK	
224	3-535-369-XX	SPRING, TENSION	
225	3-343-730-01	I DAMPER	
226	3-831-441-11	CUSHION	
227	*X-3329-555-1	OPENER ASSY (A)	
228	*3-333-084-01	SHAFT (B), FIXED, E	
229	*3-333-083-01	SHAFT (A), FIXED, E	
230	*3-343-715-01	PLATE, FIXED, MOTOR	
231	7-621-259-10	SCREW +P 2.6X3	
232	*X-3329-556-1	OPENER ASSY (B)	
233	*X-3329-568-1	CHASSIS ASSY, BOTTOM	
234	3-333-064-01	RETAINER, FLEXIBLE	
235	7-682-546-09	SCREW +B 3X5	
236	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
903	*1-617-987-13	PC BOARD, COMMON	
904	*1-622-787-11	PC BOARD, LOT	
905	*1-622-788-11	PC BOARD, PS	
906	*1-622-789-11	PC BOARD, EJ	
914	*1-622-797-11	PC BOARD, TRANSLATION	
917	1-623-642-11	PC BOARD, TRANSLATION FLEXIBLE	
M1	X-3329-571-1	MOTOR ASSY, M1	
SW105	1-570-504-11	SWITCH, MICRO (LOT)	
SW106	1-570-504-11	SWITCH, MICRO (PST)	
SW107	1-570-504-11	SWITCH, MICRO (EJECT)	

4-6.



No.	Part No.	Description	Remarks
301	7-685-203-19	SCREW +K 2X5 TYPE2 NON-SLIT	
302	X-2640-611-1	RETAINER ASSY, THRUST	
303	3-321-813-01	WASHER, COTTER POLYETHYLENE	
304	2-640-625-01	GEAR (B)	
305	7-627-554-17	PRECISION SCREW +P 2X3.5 TYPE 3	
306	2-640-620-03	SCREW (B) (1.4X3), TAPPING	
307	2-640-629-02	RETAINER (C), THRUST	
308	X-3320-567-1	CHASSIS ASSY, MD SLED	307
309	*2-640-632-01	SHAFT, GUIDE	
310	2-640-645-01	RETAINER, GUIDE SHAFT	

No.	Part No.	Description	Remarks
311	7-685-102-19	SCREW +P 2X4 TYPE2 NON-SLIT	
312	2-640-623-01	COVER, MD	
313	2-640-638-01	BEARING, FEED GUIDE	
314	7-627-852-17	+P 1.7X4	
315	2-640-622-01	NUT, FEED	
919	⚠8-848-067-01	PICKUP, OPTICS KSS-160B	
920	1-621-406-11	PC BOARD, MOTOR FLEXIBLE	
M902	X-3320-568-1	MOTOR ASSY, SLED	
S902	1-554-938-11	SWITCH, LEAF (LIMIT)	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 5
ELECTRICAL PARTS LIST

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
901	*A-3265-015-A	MOUNTED PCB, JACK
902	*A-3265-016-A	MOUNTED PCB, RF
903	*1-617-987-13	PC BOARD, COMMON
904	*1-622-787-11	PC BOARD, LOT
905	*1-622-788-11	PC BOARD, PS
906	*1-622-789-11	PC BOARD, EJ
907	*1-622-790-11	PC BOARD, MI
908	*1-622-791-11	PC BOARD, CB
909	*1-622-792-11	PC BOARD, DPT
910	*1-622-793-11	PC BOARD, EHS
911	*1-622-794-11	PC BOARD, DOE
912	*1-622-795-11	PC BOARD, LED
913	*1-622-796-11	PC BOARD, EJECT
914	*1-622-797-11	PC BOARD, TRANSLATION
915	1-623-640-11	PC BOARD, MD FLEXIBLE
916	1-623-641-11	PC BOARD, RF FLEXIBLE
917	1-623-642-11	PC BOARD, TRANSLATION FLEXIBLE
918	1-559-439-11	CORD (WITH CONNECTOR)
919	⚠8-848-067-01	PICKUP, OPTICS KSS-160B
920	1-621-406-11	PC BOARD, MOTOR FLEXIBLE
C1	1-136-159-00	FILM 0.033MF 5% 50V
C2	1-123-661-00	ELECT 100MF 20% 6.3V
C3	1-163-074-00	CERAMIC CHIP 0.033MF 10% 25V
C4	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C5	1-123-661-00	ELECT 100MF 20% 6.3V
C6	1-124-224-00	ELECT 47MF 20% 6.3V
C7	1-126-227-00	ELECT 330MF 20% 6.3V
C8	1-163-055-00	CERAMIC MELF 0.0047MF 20% 16V
C9	1-123-661-00	ELECT 100MF 20% 6.3V
C10	1-124-465-00	ELECT 0.47MF 20% 50V
C11	1-163-059-00	CERAMIC MELF 0.01MF 20% 16V
C12	1-163-062-00	CERAMIC CHIP 0.018MF 10% 50V
C13	1-163-213-00	CERAMIC MELF 0.0022MF 20% 16V
C14	1-136-165-00	FILM 0.1MF 5% 50V
C15	1-136-165-00	FILM 0.1MF 5% 50V
C16	1-126-227-00	ELECT 330MF 20% 6.3V
C17	1-123-661-00	ELECT 100MF 20% 6.3V
C18	1-163-181-00	CERAMIC MELF 100PF 10% 50V
C19	1-124-258-00	ELECT 3.3MF 20% 35V
C20	1-136-165-00	FILM 0.1MF 5% 50V
C21	1-136-165-00	FILM 0.1MF 5% 50V
C22	1-163-181-00	CERAMIC MELF 100PF 10% 50V
C23	1-136-165-00	FILM 0.1MF 5% 50V
C24	1-124-258-00	ELECT 3.3MF 20% 35V
C25	1-124-638-11	ELECT 22MF 20% 6.3V
C26	1-163-076-00	CERAMIC CHIP 0.068MF 50V
C27	1-123-661-00	ELECT 100MF 20% 6.3V

ELECTRICAL PARTS

Ref.No.	Part No.	Description
C28	1-123-661-00	ELECT 100MF 20% 6.3V
C29	1-127-482-00	ELECT(SOLID) 10MF 20% 6.3V
C30	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C31	1-163-055-00	CERAMIC MELF 0.0047MF 20% 16V
C32	1-163-074-00	CERAMIC CHIP 0.033MF 10% 25V
C33	1-124-465-00	ELECT 0.47MF 20% 50V
C34	1-124-224-00	ELECT 47MF 20% 6.3V
C35	1-163-205-00	CERAMIC MELF 0.001MF 10% 50V
C37	1-123-611-00	ELECT 1MF 20% 50V
C38	1-123-611-00	ELECT 1MF 20% 50V
C39	1-127-489-00	ELECT(SOLID) 10MF 20% 6.3V
C40	1-163-169-00	CERAMIC MELF 33PF 5% 50V
C41	1-163-169-00	CERAMIC MELF 33PF 5% 50V
C47	1-163-205-00	CERAMIC MELF 0.001MF 10% 50V
C48	1-126-227-00	ELECT 330MF 20% 6.3V
C49	1-123-661-00	ELECT 100MF 20% 6.3V
C50	1-127-482-00	ELECT(SOLID) 10MF 20% 6.3V
C51	1-126-131-11	ELECT 1200MF 20% 6.3V
C52	1-126-131-11	ELECT 1200MF -20% 6.3V
C53	1-126-227-00	ELECT 330MF 20% 6.3V
C54	1-163-164-00	CERAMIC MELF 20PF 5% 50V
C55	1-162-352-00	CERAMIC MELF 4.7PF 10% 50V
C56	1-162-352-00	CERAMIC MELF 4.7PF 10% 50V
C57	1-163-077-00	CERAMIC CHIP 0.1MF 50V
C58	1-123-611-00	ELECT 1MF 20% 50V
C100	1-163-177-00	CERAMIC MELF 68PF 5% 50V
C101	1-136-165-00	FILM 0.1MF 5% 50V
C102	1-163-205-00	CERAMIC MELF 0.001MF 10% 50V
C103	1-163-205-00	CERAMIC MELF 0.001MF 10% 50V
C104	1-163-179-00	CERAMIC MELF 82PF 10% 50V
C105	1-136-163-00	FILM 0.068MF 5% 50V
C106	1-124-462-00	ELECT 10MF 20% 16V
C107	1-124-462-00	ELECT 10MF 20% 16V
C200	1-163-177-00	CERAMIC MELF 68PF 5% 50V
C201	1-136-165-00	FILM 0.1MF 5% 50V
C202	1-163-205-00	CERAMIC MELF 0.001MF 10% 50V
C203	1-163-205-00	CERAMIC MELF 0.001MF 10% 50V
C204	1-163-179-00	CERAMIC MELF 82PF 10% 50V
C205	1-136-163-00	FILM 0.068MF 5% 50V
C206	1-124-462-00	ELECT 10MF 20% 16V
C207	1-124-462-00	ELECT 10MF 20% 35V
C301	1-124-442-00	ELECT 330MF 20% 6.3V
C302	1-123-651-00	ELECT 100MF 20% 6.3V
C303	1-123-651-00	ELECT 100MF 20% 6.3V
C304	1-123-651-00	ELECT 100MF 20% 6.3V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C305	1-124-225-00	ELECT	100MF	20%	6.3V
C501	1-136-165-00	FILM	0.1MF	5%	50V
C502	1-136-165-00	FILM	0.1MF	5%	50V
C503	1-124-455-00	ELECT	100MF	20%	16V
C505	1-163-055-00	CERAMIC MELF	0.0047MF	20%	16V
C506	1-124-462-00	ELECT	10MF	20%	6.3V
C507	1-124-225-00	ELECT	100MF	20%	6.3V
C508	1-163-063-00	CERAMIC MELF	0.022MF		25V
C511	1-124-255-00	ELECT	1MF	20%	50V
C512	1-124-465-00	ELECT	0.47MF	20%	50V
C513	1-136-165-00	FILM	0.1MF	5%	50V
C542	1-124-455-00	ELECT	100MF	20%	16V
C543	1-136-165-00	FILM	0.1MF	5%	50V
C546	1-127-489-00	ELECT(SOLID)	10MF	20%	6.3V
C547	1-125-486-00	ELECT	0.22F		5.5V
C548	1-136-165-00	FILM	0.1MF	5%	50V
C549	1-124-229-00	ELECT	33MF	20%	6.3V
C551	1-162-397-00	CERAMIC	1000PF	10%	50V
C703	1-124-255-00	ELECT	1MF	20%	50V
C705	1-163-063-00	CERAMIC MELF	0.022MF		25V
C706	1-126-247-00	ELECT	560MF	20%	6.3V
C707	1-126-247-00	ELECT	560MF	20%	6.3V
C710	1-124-119-00	ELECT	330MF	20%	16V
C718	1-124-462-00	ELECT	10MF	20%	6.3V
C719	1-124-229-00	ELECT	33MF	20%	6.3V
C720	1-124-755-00	ELECT	3300MF	20%	16V
C721	1-163-063-00	CERAMIC MELF	0.022MF		25V
CNJ1	*1-566-776-11	SOCKET, CONNECTOR 12P			
CNJ2	*1-563-912-11	SOCKET, CONNECTOR 4P			
CNJ3	*1-563-913-11	SOCKET, CONNECTOR 8P			
CNJ4	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ401	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ402	*1-566-888-11	SOCKET, CONNECTOR 10P			
CNJ501	1-566-907-11	PIN, CONNECTOR			
CNJ502	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ503	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ504	*1-563-912-11	SOCKET, CONNECTOR 4P			
CNP1	*3-333-067-01	TAG			
CNP401	*1-564-001-11	PIN, CONNECTOR 2P			
CNP402	*1-564-001-11	PIN, CONNECTOR 2P			
CNP403	*1-564-001-81	PIN, CONNECTOR 2P			
CNP404	*1-564-002-00	PIN, CONNECTOR 3P			
CNP405	*1-564-002-00	PIN, CONNECTOR 3P			
CNP406	*1-564-005-51	PIN, CONNECTOR 6P			
CNP407	*1-564-001-11	PIN, CONNECTOR 2P			
CNP408	*1-564-012-00	PIN, CONNECTOR 2P			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNP409	*1-564-001-11	PIN, CONNECTOR 2P
CNP410	*1-564-001-11	PIN, CONNECTOR 2P
CNP411	*1-564-012-00	PIN, CONNECTOR 2P
CNP412	*1-564-013-00	PIN, CONNECTOR 3P
D1	8-719-801-67	DIODE DLS1585
D301	8-719-801-67	DIODE DLS1585
D302	8-719-100-05	DIODE 1S2837
D401	8-719-812-31	DIODE TLR123
D402	8-719-812-31	DIODE TLR123
D403	8-719-100-03	DIODE 1S2835
D404	8-719-100-03	DIODE 1S2835
D405	8-719-100-03	DIODE 1S2835
D501	8-719-110-12	DIODE RD9.1ES-B1
D502	8-719-109-85	DIODE RD5.1ES-B2
D503	8-719-100-03	DIODE 1S2835
D505	8-719-100-03	DIODE 1S2835
D507	8-719-109-85	DIODE RD5.1ES-B2
D508	8-719-911-19	DIODE 1SS119
D509	8-719-110-35	DIODE RD13ES-T1B1
D511	8-719-109-85	DIODE RD5.1ES-B2
D512	8-719-109-85	DIODE RD5.1ES-B2
D513	8-719-109-85	DIODE RD5.1ES-B2
D514	8-719-109-85	DIODE RD5.1ES-B2
D515	8-719-109-85	DIODE RD5.1ES-B2
D518	8-719-911-19	DIODE 1SS119
D703	8-719-801-67	DIODE DLS1585
D704	8-719-910-62	DIODE HZ6A2L
D705	8-719-100-38	DIODE RD6.2EB2
D706	8-719-109-85	DIODE RD5.1ES-B2
D707	8-719-110-48	DIODE RD18ES-B1
D708	8-719-801-67	DIODE DLS1585
D709	8-719-109-85	DIODE RD5.1ES-B2
D710	8-719-801-67	DIODE DLS1585
DD1	1-464-848-11	CONVERTER UNIT, DC-DC
IC1	8-759-937-87	IC CXA1081Q
IC2	8-752-031-61	IC CXA1082AQ
IC3	8-752-322-32	IC CXD1130Q
IC4	8-759-942-55	IC MB88505H-530M
IC5	8-759-940-89	IC L272M
IC6	8-752-320-44	IC CXK5816M-10L
IC301	8-759-804-74	IC LC7880M
IC302	8-759-802-48	IC LA6462M
IC303	8-759-802-48	IC LA6462M
IC501	8-759-802-32	IC LB1649

ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC502	8-759-940-45	IC S-8054HN-CB
IC503	8-757-991-00	IC CX-7991
IC505	8-759-112-05	IC UPD7508HG-593-22
IC507	8-759-802-32	IC LB1649
JW200	1-249-366-11	(SERIALS UP TO 1500) ...CARBON MELF 0 5% 1/5W
JW550	1-249-366-11	(SERIALS 1501 AND LATER) ...CARBON MELF 0 5% 1/5W
L1	1-410-320-11	MICRO INDUCTOR 2.2UH
L2	1-410-320-11	MICRO INDUCTOR 2.2UH
L3	1-410-320-11	MICRO INDUCTOR 2.2UH
L4	1-410-316-11	MICRO INDUCTOR 1UH
L7	1-410-196-11	INDUCTOR CHIP 2.2UH
L501	1-410-320-11	MICRO INDUCTOR 2.2UH
L504	1-410-320-11	MICRO INDUCTOR 2.2UH
L505	1-410-320-11	MICRO INDUCTOR 2.2UH
L506	1-410-320-11	MICRO INDUCTOR 2.2UH
L507	1-410-320-11	MICRO INDUCTOR 2.2UH
M1	X-3329-571-1	MOTOR ASSY, M1 (EJECT/LEVER OUT)
M2	X-3329-560-1	MOTOR ASSY, M2 (SAVE/LOAD)
M3	1-541-309-11	MOTOR, L (RF-370C)(ELEVATOR UP/DOWN)
M902	X-3320-568-1	MOTOR ASSY, SLED
Q1	8-729-804-42	TRANSISTOR 2SB1122-T
Q2	8-729-804-42	TRANSISTOR 2SB1122-T
Q3	8-729-808-02	TRANSISTOR 2SD1622
Q4	8-729-804-42	TRANSISTOR 2SB1122-T
Q5	8-729-808-02	TRANSISTOR 2SD1622
Q6	8-729-901-00	TRANSISTOR DTC124EK
Q8	8-729-100-66	TRANSISTOR 2SC1623
Q9	8-729-900-53	TRANSISTOR DTC114EK
Q10	8-729-901-01	TRANSISTOR DTC144EK
Q101	8-729-201-04	TRANSISTOR 2SC2878
Q102	8-729-201-04	TRANSISTOR 2SC2878
Q201	8-729-201-04	TRANSISTOR 2SC2878
Q202	8-729-201-04	TRANSISTOR 2SC2878
Q301	8-729-901-05	TRANSISTOR DTA124EK
Q302	8-729-901-00	TRANSISTOR DTC124EK
Q303	8-729-901-05	TRANSISTOR DTA124EK
Q304	8-729-901-00	TRANSISTOR DTC124EK
Q401	8-729-110-21	TRANSISTOR PH102
Q402	8-729-110-21	TRANSISTOR PH102
Q403	8-719-906-43	DIODE GP-1S03
Q502	8-729-100-76	TRANSISTOR 2SA812
Q505	8-729-100-76	TRANSISTOR 2SA812
Q506	8-729-100-76	TRANSISTOR 2SA812
Q511	8-729-901-05	TRANSISTOR DTA124EK
Q512	8-729-901-00	TRANSISTOR DTC124EK
Q513	8-729-901-05	TRANSISTOR DTA124EK
Q514	8-729-100-66	TRANSISTOR 2SC1623
Q515	8-729-901-05	TRANSISTOR DTA124EK
Q516	8-729-100-66	TRANSISTOR 2SC1623
Q517	8-729-901-05	TRANSISTOR DTA124EK
Q518	8-729-901-00	TRANSISTOR DTC124EK
Q519	8-729-901-00	TRANSISTOR DTC124EK
Q520	8-729-901-05	TRANSISTOR DTA124EK
Q522	8-729-901-05	TRANSISTOR DTA124EK
Q523	8-729-100-66	(SERIALS 1501 AND LATER) .....TRANSISTOR 2SC1623
Q524	8-729-901-05	(SERIALS 1501 AND LATER) .....TRANSISTOR DTA124EK

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q704	8-729-901-00	TRANSISTOR DTC124EK
Q705	8-729-805-20	TRANSISTOR 2SB1202
Q706	8-729-100-66	TRANSISTOR 2SC1623
Q707	8-729-808-02	TRANSISTOR 2SD1622
Q710	8-729-900-53	TRANSISTOR DTC114EK
R1	1-249-433-11	CARBON MELF 22K 5% 1/5W
R2	1-249-429-11	CARBON MELF 10K 5% 1/5W
R3	1-249-086-00	CARBON MELF 11 5% 1/5W
R4	1-249-086-00	CARBON MELF 11 5% 1/5W
R5	1-249-417-11	CARBON MELF 1K 5% 1/5W
R6	1-249-421-11	CARBON MELF 2.2K 5% 1/5W
R7	1-215-448-00	CARBON MELF 13K 5% 1/5W
R8	1-249-441-11	CARBON MELF 100K 5% 1/5W
R9	1-215-446-00	CARBON MELF 11K 5% 1/5W
R10	1-215-485-00	CARBON MELF 470K 5% 1/5W
R11	1-215-473-00	CARBON MELF 150K 5% 1/5W
R12	1-249-441-11	CARBON MELF 100K 5% 1/5W
R13	1-249-441-11	CARBON MELF 100K 5% 1/5W
R14	1-249-440-11	CARBON MELF 82K 5% 1/5W
R15	1-249-431-11	CARBON MELF 15K 5% 1/5W
R16	1-215-471-00	CARBON MELF 120K 5% 1/5W
R17	1-215-486-00	CARBON MELF 510K 5% 1/5W
R18	1-249-428-11	CARBON MELF 8.2K 5% 1/5W
R19	1-215-479-00	CARBON MELF 270K 5% 1/5W
R20	1-249-439-11	CARBON MELF 68K 5% 1/5W
R21	1-249-423-11	CARBON MELF 3.3K 5% 1/5W
R22	1-249-429-11	CARBON MELF 10K 5% 1/5W
R23	1-249-441-11	CARBON MELF 100K 5% 1/5W
R24	1-215-452-00	CARBON MELF 20K 5% 1/5W
R25	1-215-493-00	CARBON MELF 1M 5% 1/5W
R27	1-249-429-11	CARBON MELF 10K 5% 1/5W
R28	1-249-429-11	CARBON MELF 10K 5% 1/5W
R29	1-249-441-11	CARBON MELF 100K 5% 1/5W
R38	1-215-454-00	CARBON MELF 24K 5% 1/5W
R39	1-249-429-11	CARBON MELF 10K 5% 1/5W
R40	1-215-396-00	CARBON MELF 91 5% 1/5W
R50	1-249-429-11	CARBON MELF 10K 5% 1/5W
R51	1-249-387-11	CARBON MELF 3.3 5% 1/5W
R52	1-249-428-11	CARBON MELF 8.2K 5% 1/5W
R53	1-249-387-11	CARBON MELF 3.3 5% 1/5W
R54	1-249-393-11	CARBON MELF 10 5% 1/5W
R55	1-249-417-11	CARBON MELF 1K 5% 1/5W
R56	1-249-417-11	CARBON MELF 1K 5% 1/5W
R57	1-249-429-11	(SERIALS UP TO 1500) ...CARBON MELF 10K 5% 1/5W
R58	1-249-429-11	(SERIALS 1501 AND LATER) ...CARBON MELF 10K 5% 1/5W
R100	1-249-429-11	CARBON MELF 10K 5% 1/4W
R101	1-215-493-00	CARBON MELF 1M 5% 1/4W
R102	1-247-849-00	CARBON MELF 5.6K 5% 1/4W
R103	1-249-433-11	CARBON MELF 22K 5% 1/4W
R104	1-249-437-11	CARBON MELF 47K 5% 1/4W
R105	1-249-431-11	CARBON MELF 15K 5% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R106	1-249-413-11	CARBON MELF	470	5%	1/5W
R107	1-249-417-11	CARBON MELF	1K	5%	1/5W
R108	1-249-408-11	CARBON MELF	180	5%	1/5W
R109	1-215-485-00	CARBON MELF	470K	5%	1/5W
R110	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R111	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R112	1-249-429-11	CARBON MELF	10K	5%	1/5W
R200	1-249-429-11	CARBON MELF	10K	5%	1/5W
R201	1-215-493-00	CARBON MELF	1M	5%	1/5W
R202	1-247-849-00	CARBON MELF	5.6K	5%	1/5W
R203	1-249-433-11	CARBON MELF	22K	5%	1/5W
R204	1-249-437-11	CARBON MELF	47K	5%	1/5W
R205	1-249-431-11	CARBON MELF	15K	5%	1/5W
R206	1-249-413-11	CARBON MELF	470	5%	1/5W
R207	1-249-417-11	CARBON MELF	1K	5%	1/5W
R208	1-249-408-11	CARBON MELF	180	5%	1/5W
R209	1-215-485-00	CARBON MELF	470K	5%	1/5W
R210	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R211	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R212	1-249-429-11	CARBON MELF	10K	5%	1/5W
R301	1-249-412-11	CARBON MELF	390	5%	1/5W
R303	1-249-441-11	CARBON MELF	100K	5%	1/5W
R304	1-249-441-11	CARBON MELF	100K	5%	1/5W
R305	1-249-417-11	CARBON MELF	1K	5%	1/5W
R306	1-249-417-11	CARBON MELF	1K	5%	1/5W
R401	1-249-409-11	CARBON	220	5%	1/4W
R402	1-249-409-11	CARBON	220	5%	1/4W
R403	1-216-182-00	METAL CHIP	220	5%	1/8W
R501	1-249-429-11	CARBON MELF	10K	5%	1/5W
R502	1-249-429-11	(SERIALS UP TO 1500) ...CARBON MELF	10K	5%	1/5W
R503	1-249-429-11	CARBON MELF	10K	5%	1/5W
R505	1-249-429-11	CARBON MELF	10K	5%	1/5W
R506	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R507	1-249-429-11	CARBON MELF	10K	5%	1/5W
R508	1-249-429-11	CARBON MELF	10K	5%	1/5W
R516	1-249-429-11	CARBON MELF	10K	5%	1/5W
R518	1-249-429-11	CARBON MELF	10K	5%	1/5W
R519	1-249-429-11	CARBON MELF	10K	5%	1/5W
R520	1-249-429-11	CARBON MELF	10K	5%	1/5W
R521	1-249-429-11	CARBON MELF	10K	5%	1/5W
R530	1-249-409-11	CARBON MELF	220	5%	1/5W
R531	1-249-417-11	CARBON MELF	1K	5%	1/5W
R532	1-215-493-00	CARBON MELF	1M	5%	1/5W
R533	1-249-429-11	CARBON MELF	10K	5%	1/5W
R534	1-249-429-11	CARBON MELF	10K	5%	1/5W
R535	1-249-429-11	CARBON MELF	10K	5%	1/5W
R536	1-249-429-11	CARBON MELF	10K	5%	1/5W
R537	1-249-429-11	CARBON MELF	10K	5%	1/5W
R538	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R540	1-249-437-11	CARBON MELF	47K	5%	1/5W
R541	1-249-429-11	CARBON MELF	10K	5%	1/5W
R542	1-249-429-11	CARBON MELF	10K	5%	1/5W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R704	1-249-417-11	CARBON MELF	1K	5%	1/5W
R705	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R706	1-249-437-11	CARBON MELF	47K	5%	1/5W
R707	1-249-413-11	CARBON MELF	470	5%	1/5W
R708	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R709	1-249-417-11	CARBON MELF	1K	5%	1/5W
R710	1-249-437-11	CARBON MELF	47K	5%	1/5W
R711	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R713	1-214-792-81	METAL	1	1%	1/2W
RV1	1-228-995-00	RES, ADJ, CARBON 22K			
RV2	1-228-996-00	RES, ADJ, CARBON 47K			
RV3	1-228-995-00	RES, ADJ, CARBON 22K			
RV4	1-228-995-00	RES, ADJ, CARBON 22K			
RV5	1-228-991-00	RES, ADJ, CARBON 2.2K			
SW101	1-554-813-21	SWITCH, KEY BOARD (EJECT▲)			
SW102	1-570-503-11	SWITCH, MICRO (CBP)			
SW103	1-570-502-11	SWITCH, MICRO (M1)			
SW104	1-570-504-11	SWITCH, MICRO (HOME)			
SW105	1-570-504-11	SWITCH, MICRO (LOT)			
SW106	1-570-504-11	SWITCH, MICRO (PST)			
SW107	1-570-504-11	SWITCH, MICRO (EJECT)			
S902	1-554-938-11	SWITCH, LEAF (LIMIT)			
TH1	1-807-776-11	THERMISTOR ERT-D2FHJ802T			
TH2	1-807-776-11	THERMISTOR ERT-D2FHJ802T			
THP501	1-807-368-11	THERMISTOR PTH59F04BG222TS			
X2	1-567-820-11	VIBRATOR, CRYSTAL			
X501	1-567-775-11	VIBRATOR, CERAMIC			

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-559-438-11	CORD (WITH CONNECTOR)
*3-333-075-01	BRACKET
*3-333-076-01	BRACKET, MAIN
3-343-727-01	INDIVIDUAL CARTON
3-343-733-01	CUSHION, LOWER
3-343-734-01	CUSHION, UPPER
3-343-735-01	SHEET, PROTECTION
3-701-628-01	BAG, POLYETHYLENE
3-769-526-11	MANUAL, INSTRUCTION
3-769-526-41	MANUAL, INSTRUCTION
A-4675-162-B	MAGAZINE ASSY
X-2114-001-2	HOLDER ASSY, BOOKLET